



THE UNIVERSITY
OF ILLINOIS
LIBRARY

720.9
H25bEr

ANTHROPOLOGICAL
LIBRARY

I
ARCHITECTURE

in its

Development from the Origin to the present Time

Introduction to its History, Technics and Styles

By

K. O. Hartmann

Volume II

Mediaeval and Renaissance

With 377 Illustrations

Leipzig

1911

Translated by N. Clifford Ricker D. Arch.

Professor of Architecture

University of Illinois

Urbana. Ill.

1912

PREFACE.

The scene of the art revolution considered in this volume is the West. In comparison to the first volume, which represents the history of architecture among the peoples of antiquity and the East, in its wide extent from the Atlantic Ocean to the extreme Asian East, the present one affords a far more unified picture. The close racial connection of the western peoples, the frequent concord in their intellectual life and in the ruling forces for art creations compelled a similarity in the cases, that made possible a more thorough treatment of the objects of the handling of interiors and the resulting construction and form treatment in the periods of the middle ages and of the Renaissance, so full of importance for the history of the civilization of mankind. The lively approval enjoyed by the principles laid down in the preface to the first volume and the manner of its execution, allows the hope to seem justifiable, that also the second volume, to whose printing the publisher has again devoted especial care, that it may find favorable acceptance in the circles for which the work is designed.

Karl O. Hermann.

Stuttgart. February 1911.

PREFACE.

III The scene of the art evolution considered in this volume is the West. In comparison to the first volume, which represents the progress of architecture among the peoples of antiquity and of Islam in its wide extent from the Atlantic Ocean to the extreme Asian East, the present one affords a far more unified picture. The close racial connection of the western peoples, the frequent concord in their intellectual life and in the impelling forces for art creations compelled a similarity in the bases, that made possible a more thorough treatment of the problem of the handling of interiors and the resulting construction and form treatment in the periods of the middle ages and of the Renaissance, so full of importance for the history of the civilization of mankind. The lively approval enjoyed by the principles laid down in the preface to the first volume and the manner of its execution, allows the hope to seem justifiable, that also the second volume, to whose printing the publisher has again devoted especial care, that it may find favorable acceptance in the circles for which the work is designed.

Stuttgart. February 1911.

Karl O. Hartmann.

TABLE OF CONTENTS.

I.	Romanesque Architecture. - - - - -	18
1.	General and historical basis - - - - -	18
2.	Evolution of Romanesque architecture - - - - -	20
	Principles of planning and construction. Periods of evolution - - - - -	22
	A. Romanesque church architecture - - - - -	22
I.	Ground plans - - - - -	22
II.	Superstructure. Vaulting. Technical procedures. Materials - - - - -	22
III.	Architectural treatment and decoration. Internal architecture. Ornament. Sculpture. Painting - - - - -	22
IV.	Peculiarities of monastery churches - - - - -	22
V.	Period of transition style and monuments - - - - -	22
V.	Spread into different countries and monuments - - - - -	22
	Germany, Austria and Switzerland - - - - -	22
	Scandinavia - - - - -	22
	France - - - - -	22
	Italy - - - - -	22
	Spain and Portugal - - - - -	22
	England - - - - -	22
	B. Romanesque secular architecture - - - - -	22
	Fortification of cities. Dwellings. Castles - - - - -	22
II.	Gothic Architecture - - - - -	22
1.	General and historical basis - - - - -	22
2.	Evolution of Gothic architecture - - - - -	22
	Principles of planning and construction. Periods of evolution - - - - -	22
	A. Gothic church architecture - - - - -	22
I.	Ground plans - - - - -	22
II.	Superstructure and its architectural treatment - - - - -	22
	Technical procedures. Materials. Architecture - - - - -	22
	Construction of vaults (hexapartite cross vaults, star and netted vaults) - - - - -	22
	Ribbed vaults with twisted series, fan and cell vaults - - - - -	22
	Tower construction - - - - -	22
	Late Gothic - - - - -	22

III. Decorative treatment	- - - - -
Ornament. Sculpture. Painting. Glass painting-	- -
IV. Spread into different countries and monuments	- - -
France	- - - - -
Netherlands	- - - - -
England	- - - - -
Scandinavia	- - - - -
Germany, Austria and Switzerland	- - - - -
Italy	- - - - -
Spain and Portugal	- - - - -
B. Monastery plans and allied grouped buildings	- - - - -
Monasteries. Castles of Orders. Hospitals	- - -
C. Gothic secular architecture	- - - - -
Castles, palaces, dwellings, city halls. Fortifications of cities. High schools (universities or colleges)	- - - - -
Monuments in France, England, Germany, Austria and Switzerland, Netherlands, Italy and Spain-	- - - - -
III. Architecture of the Renaissance	- - - - -
General basis	- - - - -
I. Historical evolution	- - - - -
II. Structural system and technical procedures	- - - - -
Walls, incrustations, plastering, roof construction, internal ceilings, vaults, dome construction	- - - - -
III-Architectural treatment	- - - - -
Forms of facades, columns and other architectural members	- - - - -
IV. Internal architecture and decoration	- - - - -
Stairways, floors, walls, ceilings. Decorative arts (Monumental sculpture, wooden decoration, intarsia, monumental painting, fresco, sgraffito, chia-oscuro, grotesques, ornament)	- - -
V. Architectural works	- - - - -
A. Church architecture	- - - - -
Ground plans. Superstructure. Monastery plans---	- - -
B. Secular architecture	- - - - -

Chateaus. Palaces. Villas. Dwellings. City architecture.
 City halls. Universities. Libraries. Hospitals. Mar-
 ket halls. Loggias. Fountains. Monuments. Theatres.
 Fortifications - - - - -

VI. Most important monuments - - - - -

Early Renaissance - - - - -

High Renaissance - - - - -

Late Renaissance - - - - -

2. Architecture of the Renaissance in Spain and Por-
 tugal - - - - -

General and historical basis of the style - - -

Plateresco. Greco-Roman style. Style manuelino.

High Renaissance - - - - -

Most important monuments - - - - -

3. Architecture of the Renaissance in France - - - -

I. Historical evolution and style - - - - -

Early, high and late Renaissance and their pecu-
 liarities in style - - - - -

Chateaus. Churches. City halls. City dwellings-

II. Most important monuments - - - - -

Early Renaissance - - - - -

High Renaissance - - - - -

Late Renaissance - - - - -

4. Architecture of the Renaissance in German count-
 ries - - - - -

I. General basis and style - - - - -

Art conceptions of the northern peoples. Bases
 for the evolution of the style. Architecture.

Decoration. Ornament. Architectural works.

Peculiarities of chateaus, dwellings, city
 houses - - - - -

Catholic church architecture. Protestant church
 architecture - - - - -

II. Evolution in the different countries and the
 monuments - - - - -

1. Netherlands - - - - -

General - - - - -

Renaissance in Belgium - - - - -

Renaissance in Holland - - - - -

2. Germany, Austria and Switzerland - - - - -
 - A. Historical basis, evolution and style - - -

Renaissance in southern and middle Germany.

Style treatment. Stone construction. Wood-
en construction. Log construction. Half
timber construction - - - - -
 - B. Most important monuments in Germany, Austria
and Switzerland - - - - -
3. Denmark - - - - -
 - General and historical basis and style - - -
 - Most important monuments - - - - -
4. Sweden - - - - -
 - General and historical basis and style - - -
 - Earlier and later Vasa periods - - - - -
 - Most important monuments - - - - -
5. England - - - - -
 - A. Historical evolution and style - - - - -
 - Early and high Renaissance - - - - -
 - B. Most important monuments - - - - -

I. ROMANESQUE ARCHITECTURE.

I. General and historical basis.

Charlemagne left the Frankish empire founded by him at his death a well joined and immovable structure. But his successors were not strong enough to maintain it at its height. The unfortunate division of the empire, in which the empire was treated as the private property of the royal family, led to the greatest internal ruptures. To the third agreement of division at Verdun (843), which caused the separation, important in the history of the world, of the German speaking peoples from the Romans, there succeeded a period of miserable decadence, in which the Frankish lands were almost without protection and a prey to foreign enemies. In it commenced as a late offshoot of the migrations of the nations the powerful movements of the Normans (Vikings), the bold seamen of the high North, who from Scandinavia, their primitive Germanic home, visited the coast lands of Europe with ravage and robbery, then set foot firmly in France (Normandy) (912), conquered England later (1066), and finally even in the distant South founded a certainly short-lived but splendid kingdom in lower Italy and Sicily (1130). Thence scattered over the entire West, by internal dissensions and contests with external enemies, in the East with the Magyars among others, in the South with the Saracens, the German race now proceeded with undiminished strength. Their mightiest races, the Franks, Saxons and Swabians, adhered firmly together, and after the failure of the Carolingian heirs gave to the eastern Frankish kingdom a series of monarchs, under whom all German races were united and awoke to a national consciousness, such as was not the case under Charlemagne. With the founding of the "Holy Roman Empire" of the German Nation" by Otto I (in the year 962), a new period began for the West, that of the German middle ages.

Until then the western provinces of the Frankish empire had stood in the foreground of political and artistic activity. But now this role passed to the eastern Franks, to Germany, as the new empire was thenceforth named. The new state obtained its true basis by feudalism, that rested on the idea already developed in the Frankish empire, of a mutual and sacrificing

expression was found in knighted and the ecclesiastical di-
 tory of the world and of civilization, which brought to the
 better ensure its period of subordination under the German, French
 and Germanic emperors, to the German nation the climax of
 their power and their heroism.

This period also found an expression in the architecture
 re, which is to be counted with the highest works of the human
 intellect. There arose that national style of architecture of
 the North, later designated by the name of "Norman style".
 Indeed because it came from the time in which the German people
 (after) life received its final impulse from Roman civilization,
 ion, and since it was directly connected to the Roman empire,
 fostered and revived by Christianity. This style is
 so far superior, since even in many of its forms and
 theories in form and that of the highest Christian art,
 the Norman style did not have its native place in form o
 countries, but where the German nation possessed superiority.
 in Germany, England and Denmark, and in its highest bloom
 in the ancient Germanic Germany. It would therefore be diffi-
 ci termed the "Germanic style". For it is the German indivi-
 duality, that appears in all its forms. The individuality

first to the German nation for the expression
 in the Germanic style, the unusual dissensions manifested in
 even the earliest nations, that were only restrained by the
 all powerful idea of Christianity and the sacred historical
 connection of life in the period, -- these final remnants of
 the German and chiefly of the German national character in
 a special reflection in the Norman style, and indeed in
 in the expression of all similar treatment of art
 in the Germanic style.

truth retained until death. An idealism produced this state system, and which never before nor afterwards had its like, and that in combination with the deep religious inspiration gave to the middle ages their peculiar stamp. Its most visible expression was found in knighthood and the ecclesiastical hierarchy. Then commenced a period of high importance to the history of the world and of civilization, which brought to the German empire its period of splendor under the Saxon, Frankish and Hohenstaufen emperors, to the German nations the climax of their power and their heroism.

This period also then found an expression in the architecture, which is to be counted with the highest works of the human intellect. There arose that national style of architecture of the North, later designated by the name of "Romanesque style", indeed because it came from the time in which the German intellectual life received its basal impulses from Roman civilization, and since it was directly connected to the Roman antique, fostered and revived by Charlemagne. But this appellation is so far insufficient, since even if many of its forms are prefigured in Roman art and that of the farthest Christian East, the Romanesque style did not have its native place in Roman countries, but where the German nation possessed superiority, in Normandy, Burgundy and Lombardy, and in its richest bloom in the entirely Germanic Germany. It would therefore be better termed the "Germanic style". For it is the German individuality, that appears in all its forms. The inclination peculiar to the German nations for the expression of racial peculiarities, for subdivision into regions and families, which in general were closed to the external world and permitted a comfortable separate life, the unusual dissensions manifested in even the smallest matters, that were only restrained by the all powerful idea of Christianity and the strong hierarchical conception of life in the period, -- these basal tendencies of the Germanic and chiefly of the German national character find a speaking reflection in the Romanesque style, and indeed in its separate solution not only by races but also by countries, in the expressed avoidance of all similar treatment of details, in the infinite variety of architectural and ornamental forms,

and finally in the combination of the masses by
which ideas raised above all, just therein, how the
temper, often so diverse, expressed in power and
of, while in a similar way, the same
part that harmony peculiar to Homeric epics architectural works,
by which the German national life receives such a character
in expression.

With the entrance of the middle ages the entire art life
the West entered an unexpected upward course. It sprang
fell the part of leader. It was developed on the atmosphere
became not only the most important locations of Christian civ-
lization, but also flourishing homes of the arts, whose first
erine lay first in the hands of the clergy and chiefly in the
se of the monks. who thereby on account of the different needs
of the society in which they lived, the monks, the artists
excellent artists with the help of lay brothers. In the mean-
time in which the arts were also placed in the service of the
people, and of the gradually flourishing cities for artistic
in secular recreation, the lay element also took an interest
and part in the activity of the numerous architectural master-
pieces. Finally it was the knightly class, which brought the
architecture the greatest profusion and brought them to comple-
tion at its command and with its taste. Thus even the archi-
tecture of the Romanesque style was connected with the
knightly class, which gave the knights the opportunity to
they were most closely connected.

II. Evolution of Romanesque architecture.

The Romanesque style was not originated by a definite race
of the German people or in a definite country; it was rather
evolved in various and different ways, the result
temporarily and in an entirely independent manner. The result
of the Roman antiquity cannot be mistaken. It expresses itself
first in the elevated conception of art, which was the result
in the military mind, which first gave in regard to the evolu-
tion of architectural art, in the tendency of building
and in the actual building of the Romanesque style.

and finally in the combination of the masses by the ecclesiastical idea placed above all. Just therein, how the different members, often so diverse, exuberant in power and unrestrained, unite in a complete and harmonious whole, lies in great part that harmony peculiar to Romanesque architectural works, by which the German national life receives such a characteristic expression.

With the entrance of the middle ages the entire art life of the West assumed an unexpected upward course. To architecture fell the part of leader. It was developed on the structures for religious worship. The bishops' seats and the monasteries became not only the most important locations of Christian civilization, but also flourishing homes of the arts, whose fostering lay first in the hands of the clergy and chiefly in those of the monks, who already on account of the different needs of the separate orders had an interest therein, for working as executing artists with the help of lay brothers. In the measure in which the arts were also placed in the service of the nobility, and of the strongly flourishing cities for satisfying secular requirements, the lay element also took an increasing part in the mastery of the numerous architectural undertakings. Finally it was the imperial court, which proposed to architecture the grandest problems and brought them to completion at its command and with its means. Thus even the architecture of the Romanesque middle ages was connected with the splendor of the empire, with whose fate its flourishing and prosperity were most closely connected.

II. Evolution of Romanesque architecture.

The Romanesque style was not originated by a definite race of the German people or in a definite country; it was rather developed in various and far separated works approximately contemporary and in an entirely independent manner. The reaction of the Roman antique cannot be mistaken. It expresses itself first in the elevated conception of art taught by the Romans, in the mighty impulse, which that gave in regard to the employment of columnar architecture, in the technics of vaulting and in the entire treatment of the interior. To a Roman or

...-Ternan basal form also retained the original
 ... of ... the ...
 ... the further development may be followed the entire

... ..

The basis of the ... was already ... in its
 ... parts in the ... period (see Volume I,
 ...; the ... of the ...; the ... and
 ... of a ... cross, sometimes with the addition of a ...
 ... elevation of the ... for the ... division
 ... of the ... middle and side ...; the ... of
 ... and ... to support the longitudinal walls and ...
 ... of the ... in the ... (fig. 1). The
 ... of the ...; ... the ... cover-
 ... was always ... by the ...
 ... of the ...; or by a ... ceiling divided

... in the ... period
 ... to this ...; even ... in an over-
 ... (fig. 2). But its small ...
 ... by ... early to the ...
 ... for the ... the ... of ...
 ... for which the ... had left excellent models
 ... which in many cases still ...
 ... in the course of the ...

... already ... in the ... century, but ...
 ... with ... of ...
 ... soon ... to the ... of the
 ... first in the ... and ...; ...
 ... into ...
 ... in the history of ...

... the ...; the ...; the ...
 ... of the ...; the ... of ...
 ... was ... into an ... consistent in all
 ... and ... in itself.

... the ...
 ...

Roman-Early-Christian basal form also returned the principal building of Romanesque church architecture, the basilica. In its further development may be followed the entire course of Romanesque art.

The basis of the basilica was already prefigured in its most important parts in the Carolingian period (see Volume 1, page 179); the arrangement of the nave, transverse aisle and choir in form of a Latin cross, sometimes with the addition of a western choir, elevation of the choirs for the crypts, division of the nave into middle and side aisles, the installation of columns and piers to support the longitudinal walls and ceilings, inclusion of the towers in the building. (Fig. 1). The internal covering of the interior, excepting the apse, covered by a half dome, was always accomplished by the open framework of the roof, or by a horizontal wooden ceiling divided into panels or coffers. Likewise in the Romanesque period men adhered to this mode of covering, even if also in an ever more limited degree. (Fig. 2). (Fig. 3). But its small durability and easy destruction by fire led quite early to the endeavor to utilize for the basilicas the great advantages of vaulting methods, for which the Romans had left excellent models in their architectural works, which in many places still remained visible. Therefore men began in the course of the 11 th century (aside from isolated attempts at vaulting in southern France, already falling in the 10 th century, but remaining without further development) with the vaulting of smaller chapels and tomb churches, soon passing to the vaulting of the large churches, first in the side aisles and galleries, finally with advancing structural security, also in the middle aisles. Thereby was introduced an impulse into mediaeval architecture of high importance in the history of architecture. The construction of vaults powerfully affected the development of the plan, the treatment of piers and columns, the subdivision of the walls, and the handling of facades. The entire body of the structure was developed into an organism consistent in all its members and complete in itself.

Since the entire creation of the interior in ground plan and form was dependent on the mode of vaulting, to this was then

devoted the full attention of the architect. The simplest solution resulted from spanning the aisles by tunnel vaults with transverse arches as connecting the piers. It was chiefly common in southern France, where numerous Roman architectural monuments still exhibit this mode of construction. There are also found isolated domed churches and central buildings.

But of infinitely higher importance for western church architecture was the introduction of cross vaults. The Romans had already recognized their advantages for covering elongated rooms (see volume 1, page 105), and extensively employed them in their great designs for the baths. But the architects of the middle ages brought them to their highest perfection. In the first period men ventured only to construct round arched cross vaults, resulting from the intersection of two tunnel vaults of equal width and height. (See volume 1, Fig. 123). Thereby men were restricted to square bays in the arrangement of the ground plan, into which must be subdivided both the middle and transverse aisles, as well as the side aisles. To the latter was assigned half the width of the middle aisle, so that each two bays of the side aisles equaled one bay of the middle aisle. Thus originated the restricted Romanesque architectural system. (Fig. 4). Only after the architects had progressed so far in security of construction, that they could also proceed to cover rectangular rooms with tunnel vaults (Fig. 5) did the side aisles receive the same number of vaulting bays as the middle aisle, and the ground plan acquired a perfect harmony. (Fig. 6). But this advance also already indicates the climax of the development of Romanesque art, at least so far as its style purity is in question. For the technical acquisitions pressed toward freedom from the restricted system, toward the abandonment of the round arch and its restraining consequences. In the search for a form of arch, in which the rise is independent of the span, so that one could execute vaults over spans of different widths with equal heights, men in Picardy (north France) already in the first half of the 12th century hit on the fruitful idea of composing the vaulting line of two circular arcs. Thereby was the pointed arch (Fig. 5) introduced into mediaeval architecture. From its employment and the str-

structural and formal results originated a new style
form - the baroque style passed into the rococo.
The entire activity of the baroque middle class
in a restless progressive evolution. Its beginning is
to the middle of the 16th century, indeed in a limited sense
even to the days of the Calvinists. But in general for
the entire period of the 17th century, it is a
new assigned its climax and after scarcely another century it
also reached the last phase, that of the transition style. W
With regard to the course of evolution, three periods are there-
fore to be distinguished.

The style of the 17th century is characterized by
baroque, beginning of varied construction, heavy and unsw-
erful forms.

The style of the 18th century is characterized by
rococo, beginning of varied construction, heavy and unsw-
erful forms.

(During the 17th and 18th centuries of varied, graceful and richer
development of forms. Appearance of new elements, particularly
iv of the pointed arch and of the contrast system).
For the transition in dates of these periods the development
of baroque art in the heart of Germany is chiefly consider-
ed. Other countries did not keep pace equally. In certain
provinces of France the baroque period ended already with
the epoch the first quarter of the 18th century. Also even
in Germany at the same time the elements of construction and
form of the baroque style were developed gradually from ene-
gies, here till the middle of the 18th century the final char-
acter of the architecture remained still baroque in the
the course. The transition style denotes for Germany the la-
st climax of its national character in the baroque time of
the Habsburgian emperors, freed from every restraint.

A. Baroque and Rococo Architecture.
I. The ground plan.
The plan and treatment of the baroque churches is so
too, that scarcely a single one bears all the characteristic

structural and formal results originated a new structural system:- the Romanesque style passed into the Gothic.

The entire art activity of the Romanesque middle ages ended in a restless progressive evolution. Its beginnings go back to the middle of the 10 th century, indeed in a limited sense even to the days of the Carlovingians. But in general for the Romanesque style in its formal development the year 1000 is to be regarded as the lower limit. A century later it also already attained its climax and after scarcely another century it also reached the last phase, that of the transition style. With regard to the course of evolution, three periods are therefore to be distinguished.

I. The early period from 1000 to 1100 (horizontally covered basilicas, beginning of vaulted construction, heavy and undeveloped forms).

II. The best period from 1100 to 1180 (horizontal ceilings replaced by vaulting, technically secure treatment of the latter, mature and elegant members and forms).

III. The late period (transition style) from 1180 to 1250. (Strong rise and free treatment of vaults, graceful and richest development of forms. Appearance of new elements, particularly of the pointed arch and of the buttress system).

For the limitation in dates of these periods the development of Romanesque art in the heart of Germany is chiefly considered. Other countries did not keep pace equally. In certain provinces of France the Romanesque period ended already with the end of the first quarter of the 13 th century. Also even in Germany at the same time the elements of construction and form of the Gothic style there developed gradually found entrance, here till the middle of the 13 th century the basal character of the architecture remained still Romanesque in its entire course. The transition style denotes for Germany the last climax of its national character in the splendid time of the Hohenstaufen emperors, freed from severe restraint.

A. Romanesque Church Architecture.

I. The ground plan.

The plan and treatment of the Romanesque churches is so varied, that scarcely a single one bears all the characteristic

... and still most striking by the uniformity of their
 ... have far more frequent, than which indeed may be said
 ... a small square. "This is especially true for German
 ... were the "central square" was more or less and con-
 ... developed. The ground plan of the church building
 ... of the three sided building. (A point in connection
 ... the ground plan: five sided and more. In the ground plan
 ... all dimensions are provided with a definite ratio to each
 ... A mass given not only as the square of the ratio
 ... the proportion of the whole and transverse sides, the cross-
 ... side. According to one side is the choir square with the
 ... on the east and north sides being a square
 ... the transverse side, and toward the west several squares
 ... (generally three to six in Germany), which form
 ... the whole side. The side square receives half the width of
 ... the whole side; that is, at one end it is the transverse
 ... as a rule are enlarged by two smaller side squares in the
 ... of the side square. In most
 ... already in part in the last Germanic period, but as-
 ... in the late Germanic period, the side square
 ... On French cathedrals a number of relatively advanced cases
 ... the choir square, which result in
 ... the erection of numerous side and central squares in the
 ... (see volume I, page 111). Double choirs and
 ... the early time of the ~~Germanic~~ period, (11th, 12th, and 13th)
 ... an increase in the number of choir squares, and they
 ... of the choir is treated with increas-
 ... and extension. Smaller cathedrals receive one or two squares at
 ... for instance, for instance, the choir square and the
 ... no five or more, and in certain cases even to nine. Their ex-
 ... four squares. Four corners no definite ratio. Four corners
 ... of the choir, two on the eastern facade and
 ... two in the angles between choir and transverse side; then in-
 ... solve an important aesthetic problem. Since they chiefly or-

marks. And still most buildings by the uniformity of their purpose have harmonious traits, from which indeed may be established a normal scheme. This is particularly true for Germany, where the "restricted system" was most clearly and consistently developed. The ground form of the church building is formed by the three aisled basilica. (Except in southern France, single aisled basilicas are only found in smaller city and country churches; five aisled are rare). In the ground plan all dimensions are arranged with a definite ratio to each other (Fig. 4). A mass giving unit is the square arising from the intersection of the middle and transverse aisles, the crossing. Adjoining it on the east is the choir square with the semicircular apse, on the south and north sides being a square as the transverse aisle, and toward the west several squares are prefixed (generally three to six in Germany), which form the middle aisle. The side aisles receive half the width of the middle aisle; they open at the east into the transepts, which as a rule are enlarged by two smaller side apses in the opposite wall as terminations of the side aisles. In richer plans, already in part in the best Romanesque period, but especially common in the late Romanesque period, the side aisles are also continued beyond the transepts as choir aisles. (Fig. 7). On French cathedrals a number of radially arranged chapels are often attached outside the choir aisle, which permit the erection of numerous altars and remarkably animate the eastern portion. (See volume 1, page 181). Double choirs and double transverse aisles still frequently occur in Germany in the early time of the ^{Romanesque} ~~Renaissance~~ period, (Fig. 8), but have an innate justification only for monastery churches, and they again gradually disappear in the late period. The inclusion of towers in the mass of the building is treated with increasing attention. Smaller churches receive one or two towers at the western end; for larger churches the number is increased to five or more, and in certain cases even to nine. Their grouping follows no definite rule. Most commonly four towers occur at the angles of the nave, two on the western facade and two in the angles between choir and transverse aisle; then they solve an important statical problem, since they chiefly op-

p

oppose the thrust of the vaults acting in the longitudinal direction. Yet they also frequently flank the apse or stand at the sides of the gable, sometimes also at the angles of the transepts. (See Figs. 17, 36, 45 and 9). Evidently determinative in the arrangement and treatment of the towers was the striving for picturesque effect and for a living expression of the heaven aspiring idea of Christianity. Over the intersection of transverse and middle aisles usually rises a polygonal crossing tower. (See Figs. 9, 36, 44). The crossing piers supporting it are consequently particularly strong. Not rarely also the crossing or the entire transverse aisle is taken into the raised choir (presbytery), and this is enclosed by low balustrades (concelli). In their places occur in the later time (analogous to the Byzantine iconostasis; see volume 1, page 188) high enclosures, that open by doors toward the middle aisle and are frequently treated as galleries. On these galleries, reached by winding stairs from the choir, was read the gospels, from which they received the name of "lectorium", the name of "lettner" (rood gallery) being derived from that. (See Fig. 162).

The importance of the crypt as a burial church beneath the raised choir goes back into the 12 th century. By the influential and widely extended building schools founded by the Benedictine Order at Cluny in Burgundy and by the Hirsau congregation in Swabia, this was entirely opposed (on the other hand with it the continuation of the side aisles as choir aisles forms the rule). To the windows were given at first very small dimensions, in order to weaken the walls the least possible against the strong thrust of the vaults. They lie in the side walls of the nave, in the apse, and in the clearstory walls of the middle aisle. (See volume 1, page 151). For the same reason are the portals strikingly small. They were arranged, as on the Early Christian and Carlovingian basilicas, in the western facade as separate entrances to the different aisles or between the two facade towers, or also and especially in churches with double choirs in the sides of the side aisles, the transepts, or in the southern or northern walls of the nave.

The large atrium of the Early Christian churches is omitted

almost without exception. The former portico (see volume 1, page 176) remains as a small open room inserted between the western towers or prefixed to the entire width of the facade, to which the name of "paradise" was given. The holy water basin placed within it at the entrance recalls a recollection of the former cantharus. (See volume 1, page 149). ~~The location~~

The location of the high altar, to which are added side altars in the smaller side apses, the cathedra and the seats for the priests, the division of the interior for the clergy and the people, follow the model given in the Early Christian basilica. (See volume 1, page 149). Since sufficient space was at the command of the clergy in the presbytery enlarged by the choir square and the crossing, and also sometimes by the entire transverse aisle, there could be an aisle taken from the former enclosure by balustrades in the nave.

Besides the longitudinal church system described here, there yet occur central plans among Romanesque church buildings. These are more common in southern countries (Italy and south France) than in the north, erected chiefly as baptismal chapels (baptisteries) beside the main churches, as churches of the Holy Sepulchre, or as chapels for the dead (so-called bone houses) in cemeteries. Parish churches based on the central scheme are more rarely found and then are explained by the particular conditions and relations of the countries and masters concerned.

2. The structure.

The development of the churches in height was carried on in the early time of the Romanesque period still entirely within the limits of the always low antique-Christian basilicas. Yet in its further progress the dimensions begin to increase, and in the best period of the restricted system (about in the second half of the 12th century), the height of the middle aisle to the springing of the vaults generally attained twice the breadth, thus being twice the side of the crossing square. But advances far beyond this measure were made finally. The structure itself is essentially determined by the mode of framing of the ceiling. So long as only visible framework of the roof or horizontal wooden ceilings came into consideration, t

there are also found more purely columnar basilicas, in which the walls of the middle aisle rest entirely on columns. But already in the Carolingian churches (Einhard's basilica at Steinbach; volume 1, page 181), the columns were replaced by the strong piers; these predominated during the entire Romanesque period. Yet also continued the alternation of piers (at the angles of the squares of the middle aisle) and columns set between them, which is first proved among the German churches indeed on the long since destroyed abbey church at Lorsch, dedicated in the year 774 (see volume 1, page 182), being especially frequent in the Saxon provinces. (See Fig. 8).

With the vaulting of the aisles another problem fell to the pier. It not only received the tolerably uniformly distributed weight of the wall, but became a supporter of the vault, and as such was dependent on it. The pier must then **first** correspond in strength to the load assigned to it, while if the great vaults of the middle aisle rested on it, it was to be made more massive, than if it only had to support the smaller vaults of the side aisle. But it must also be arranged in form according to its structural problem, when the members of the vault required corresponding support by rectangular projections on the pier or pilasters, extending from the impost to the base of the pier. Thus originated the main and intermediate piers, as well as the compound piers. (Figs. 10, 11). On them the statical function also came to be expressed decoratively. With advancing skill in vaulting they experienced an even richer treatment. The entire structure thus received by the internal alternating effect of supports and the forms of the ceiling an animated and rhythmic treatment. (Since the church architecture of the 12th century frequently undertook the vaulting of such basilicas, that originally had horizontal wooden ceilings or were intended therefor, the form treatment of the supports frequently omits a regard to the ceilings.

The earliest vaulting of Romanesque churches in the great style was carried on as entirely independent undertakings at the same time in three widely separated regions; for example in Burgundy at the abbey church of Cluny (1089-1095), in the Rhine provinces at the cathedrals of Speyer (between 1080 and

1100 and Mentz (begun 1081) and in Lombardy at S. Ambrogio in Milan and S. Michele of Pavia from the second half of the 11th century. All of them are based on a unified system, in so far as the elongated interior of the aisles is first spanned by several transverse arches, sometimes rising from the projections of the piers. These produced a subdivision of the ceiling into separate bays or areas, which were then vaulted. For the building first named, as for numerous French churches that assume a separate position in this respect, as we shall see later, the tunnel vault was chosen for the middle aisle. The others have the cross vault, infinitely more important for the evolution of mediaeval art. (See volume 1, page 105). This shows itself as particularly suited for church architecture, since the entire ceiling load is transferred to the lower ends of the groin lines, the transverse arches and their repetition on the walls, the side arches, and consequently entirely rest on the piers. At first the vaults were still unusually heavy and deep (in certain places up to 6.56 ft.), whereby is also explained the extraordinary thickness of the piers and abutment walls. The endeavors of the architect soon proceeded to reduce the weight of the vaults and particularly the strong side thrust resulting therefrom. On the original cross vault produced by the intersection of two tunnel vaults, the groin lines form a flat ellipse, since their intersection is at just the same height as the crown of the round arch. (See volume 1, page 123). This produces a much greater side thrust than a semicircular or stilted arch. To obtain a reduction of the thrust, men began gradually to raise the diagonal arches. About the middle of the 12th century, these reach the semicircle. On the separate tunnel compartments the line of the crown was no longer horizontal, but it rose toward the common vertex in the form of a flat arch. The vault compartments (these are the spherical triangles between groin lines and transverse or side arches) were swelled upwards, so that the swelled (bosom) vault was produced. (Fig. 12). In recognition of the high importance of the groin arches for a proper reduction of the vault, men finally decided (in Germany at about the end of the 12th century, in Norman France already in its second quarter),

to construct them like the transverse arches as projecting diagonal arches, combining them at the intersection in a boss. Thereby the bay was divided into a network of ribs, between which the compartments could be turned with unequal and less thickness. These ribbed cross vaults (Fig. 13) indicates an extremely important advance in the entire structural system. From its consistent use resulted most structural innovations of the transitional period and of all later mediaeval architecture. With the introduction of cross vaults first in the side aisles, then in the middle and transverse aisles, and with the execution of choir and cloister vaults (see volume 1, page 106) over the apses, and with the crossing was subsequently completed the creation of the interior of the cross vaulted basilica.

During the entire Romanesque period, the form of the pure basilica predominated with lower side aisles, raised middle aisle and windows in its clearstory walls. (Fig. 14). Yet other types of plan were developed with reference to the treatment of the interior or for structural reasons. The crypts were quite early covered by cross vaults and always had aisles of equal height. (See fig. 82). In the little chapel of S. B Bartholomäus at Paderborn (Westphalia) of the year 1017, the first example of the entire covering of an upper church by cross vaults in Germany, these in the same manner and manifestly under the influence of this crypt vaulting, are carried to equal heights over the middle and side aisles. Thereby was obtained indeed an interior supported by piers but of equal heights and consequently unified. Thus arose the system of hall churches. (See Fig. 15). A structurally favorable change was produced by the insertion of a vaulted intermediate floor in the high side aisles with the development of the upper stories thus formed into galleries. In these hall churches with galleries the intermediate floors produce a stiffening of the piers, and the transverse arches turned between the different divisions of the gallery with the leveling masonry above causes a side resistance to the middle main vaults. The impression of the interior approximates that of the basilica, but is inferior to that, since the upper walls of the middle aisle have

no direct light. To obtain a clearstory, men raised the walls of the middle aisle above the roofs of the galleries, and thus created a new type, that of the vaulted basilica with galleries. (Cathedral at Limburg-a-Lahn; see Fig. 16).

Differing from this general course of development of vaulted construction of the Romanesque period, that of the church buildings in France struck out a new path, especially in its southern provinces. It evidently commences with a direct imitation of Roman architectural methods with the spanning of a nave with single aisle, a so-called hall church, by a tunnel vault, that is subdivided into bays by transverse arches, which rise from wall piers like the antique or half columns. The nave ends at the altar and without the insertion of a transverse aisle, but with a square raised choir room, frequently covered by a dome, and an adjoining polygonal apse. But very early and after the end of the 10 th century was also developed the system of the hall church, that soon became at home in the Rhone valley as well as in the extreme south and west of France, and from thence penetrated into the north as well as beyond the Pyrenees into Spain. The insertion of galleries again gave a certain agreement of the interior created with the basilican type, which predominated in middle and northern France, both with and without galleries. Here the vaulting movement on the whole followed the normal course already described, while in a rather limited domain of the southwest, in Aquitaine and under Byzantine influences, the vault bays divided by transverse arches are covered by pendentive domes (see Fig. 58). The tunnel vaults maintained themselves elsewhere. On three aisled churches the tunnel vaults either lie parallel to the longitudinal direction or the side aisles have half tunnel vaults, whose crown line abuts against the walls of the middle aisle, thereby affording great advantages in construction, when they transfer the side thrust of the main vault to the external walls like flying buttresses. (Figs. 59, 61). This effect was obtained by placing the tunnel vaults transversely in the side aisles. These were soon succeeded by their intersection, and thereupon the adoption of cross vaults, first in the side aisle and finally also in the middle aisle.

14 With the increasing certainty of the mediaeval architect in

vaulted construction appeared a reduction of the wall masses corresponding to the lessened weight and side thrust of their vaults. Their intersections at doorways and windows became gradually longer. The latter generally continued narrow and small in the outer walls of the side aisles, but were enlarged in the clearstory walls of the middle aisle. The interior of the church was consequently filled with a mystical dim light, somewhat lighter upwards. The most favorable light was furnished by the windows in the polygonal drum of the crowning tower. Likewise the western and side towers received in the lower stories only small and slot-like openings, but still above the roof were made more light and graceful by the larger single and coupled windows. Particularly open ~~was arranged~~ the uppermost story, intended as a bell tower, in order to allow free passage to the sound of the bell. Conical or pyramidal spires, frequently massively constructed of cut stone, on which for square or polygonal plans, small gables usually rise above the different sides, forming the termination. (Fig. 17). For the external covering of the remainder of the building remained in use the gable, shed, hip and conical roofs, already common in the antique Early Christian period, with a covering of tiles, slates or metal (lead).

The technical methods exhibit in the beginning the still fumbling uncertainty of the builders in construction and form. These were even then chiefly of the clergy, who had no training in building. Only after taking into service suitable lay brothers for the erection of the buildings was developed a permanent race of mechanics, who indeed according to need travelled from one building site to another, was gradually crystallized technical knowledge. An arrangement of plan and preliminary calculations of the project for a church in the modern sense indeed never occurred. Frequently without regard to whether the means were adequate, the buildings were commenced, indeed as a rule with the most important part, the altar house. But not rarely must work be stopped and the buildings utilized; the enlargement and completion of the structure was a work of a much later time. From inaccuracies in the dimensions of the ground plan, for which the square still afforded a convenient

unit of measure, the variation from the right angle in the plan and the like permits the conclusion, that men also depended on very primitive tools and expedients. In the construction of the building the statical feeling, gradually attaining high development in regard to the treatment of piers and vaults, was often entirely wanting in a very important part, the substructure. The walls, so heavy in themselves and loaded by the masses of the vaults, usually had such insufficient foundations, and indeed set so flatly on the ground, that notable settlements already occurred during the construction, of which the "leaning towers" afford evidence today.

The material itself was mostly good. Men particularly understood how to prepare an adhesive and durable mortar. The marble in Italy produced a splendid effect and permitted the richest moulding and treatment in relief. In France indeed men had a less noble material at command, yet a fine-grained and easily wrought limestone; but in Germany on the contrary were chiefly colored sandstone and tufa, that in certain regions and especially on the Rhine permitted a finer chiseled work, but in other provinces the coarse-grained or porous structure precluded this. As the most excellent masonry was ranked ashlar construction, for the animation of which by bands and surface patterns of polychromatic stones appeared a special preference in Italy, as well as partially in the north. In using quarried stone, men chose a better material as a rule for the angles, mouldings, columns, piers and moulded members. In the bonding occur occasionally the opus reticulatum and opus spicatum, known from Roman remains of buildings. (Volume 1, Fig. 105). Very dangerous proved to be the widely extended use in the Romanesque period, of wooden timbers inserted in the external walls in order to distribute the pressure and for anchors, still to be seen in the west building of the church at Wimpfen-im-Tal, in the west choir of the cathedral at Worms, and on many other monuments. With other things it led to the collapse of the northern west tower of the foundation church at Fritzlar in the year 1868, and it was also manifestly one of the chief reasons for the fall of the tower of S. Marco in Venice.* Likewise the brick construction, already native in Lombardy

since the Roman period, in the 12th century found entrance a
 1/6 and zealous use in the north German lowlands, where natural s
 stone was only procured with difficulty. It there bears in t
 the details numerous traits harmonizing with those of the bri-
 cks-architecture of upper Italy. (The mediaeval wall bricks ch-
 iefly differ from the antique-Roman, in that the latter shows
 a deep red with a height of only 1.18 to 1.97 ins. and a leng-
 th of 7.87 to 11.81 ins., while the mediaeval bricks have a l
 lighter, yellowish-red color and are considerably higher, 3.54
 to 4.72 ins. thick and about 9.84 ins. long). With the exten-
 sion of stone and brick construction receded the importance of
 wood as a building material. Only in the high North, in Scan-
 dinavia and the adjacent countries, in which the churches were
 externally constructed of wood, it likewise continued in the
 middle ages.

** Vitruvius had already recommended for masonry inserted an-
 chors of "charred" olive wood, i.e. charred over a clear fire,
 and which is infinitely more durable than oak or fir wood.*

3. Architectural treatment and decoration.

Like the entire structural system, so was also rooted the f
 form expression of Romanesque art in the ground of the German-
 Roman antique, permeated by Byzantine and Syrian-Early-Chríst-
 ian tendencies. But during its growth it adopted in ever ric-
 her measure materials furnished by the northern German civili-
 zation, under whose influence arose changed and novel forms,
 which permit the primitive forms to be recognized in but gene-
 ral ways.

The internal architecture was substantially determined by t
 the method of treating supports and ceilings, by the subdivis-
 ion of the walls, and by the openings in doorways and windows.
 On columns and piers continued the classical divisions into
 base, shaft and capital. But otherwise they followed no bind-
 ing law. According to the structural requirements, the colum-
 ns are sometimes unusually thick and stumpy, sometimes thin
 and slender, especially the latter when they project from the
 piers as half columns. The base of the column retains the pro-
 file of the Attic base (Fig. 19), is at first unusually high,
 approximating classical proportions in the best period, but l

later becomes ever lower, appearing finally as a plate edged by a deep scotia, from which the torus lying on the plinth projects in a wide and flat form. A transformation of the base exclusively belonging to the Romanesque style was effected by the corner leaf, an addition at first like a block or knob, then ornamented in animal and plant forms of infinite variety, placed on the angles of the plinth (Fig. 20). -- It first appears in Lombardy, but already 50 years later is at home in Germany and there forms a characteristic of the art of the 12th century. With the beginning of the 13th century the angle ornament was supplanted by the annular moulding, projecting even to the angles of the plinth.

The column shaft is mostly monolithic (made of one stone) in Germany, in this case being somewhat diminished, but without entasis. It there remains in general more slender than in England and France, where as also in part in Italy, is preferred the construction in courses. The external surface is mostly smooth and seldom fluted, but usually in the later period is covered by zigzag patterns, strap, rope, scale and interlaced ornament. Occasionally occur knotted connections at the middle of the shafts of thin coupled columns. In Italy the columns are usually twisted in the most varied alternation and inlaid with costly mosaics. (Figs. 221, 69). The later period enriched the shafts further with the column band, an intermediate shaped moulded member inserted at its middle, first occurring on the small columns and giving them a good connection with the wall, also later passing to the free supports also as a characteristic mark of the transition style. (Fig. 40).

18 An infinite variety of novel forms was matured on Romanesque capitals. Originally imitated from antique forms in the Carolingian period (Fig. 22), they ever become more permeated and transformed by northern ornamentation, until the Roman form of the unknowable was approximated and was perceived to be neither clear nor beautiful. Therefore men passed to the selection of the simple square boss form for the head of the column, rounding this off on each side in a semicircular opening upwards, whereby a strongly supporting curved line extended between the abacus and astragal. Thus was obtained the cu

cushion capital, characterizing the best time of the Romanesque period. (Fig. 23 A). This permitted in a simple and esthetically tasteful manner the transition from the circular form of the shaft to the square of the impost of the arch, and it affords in the semicircles and the underside surfaces suitable for relief ornament, that developed an almost fabulous wealth of highly imaginative band and plant ornament, richly permeated by the mystical symbolism of grotesque human and animal figures. Even if still rare, the cushion capital was already found before 1050 on this side and beyond the Alps, earliest in Germany on the western choir of the Minster at Essen (volume 1, page 178) and in the church of S. Michael at Hildesheim (1001-1033; Fig. 41), but became naturalized in Germany from the middle of the 11 th century *, there dominating all architecture during the entire time of the best Romanesque period. As transformations of the basal form are to be regarded the four-parted cushion capital of the art of Alsace and of the lower Rhine, the octopartite in the region around Lake Constance, and the scalloped or folded capital characteristic of English architecture. (Fig. 79). In north German brick architecture is already found the trapezoidal capital already prefigured in Lombardy. (Fig. 23 B). In France the cushion capital never was actually naturalized; there the inserted frustum or a pyramed or cone predominated as the nucleus form of the capital. In Italy and in some regions of Germany the figure capitals enjoyed greater favor. (Fig. 24 A). The so-called "historical capitals" often present in their relief ornamentation an entire story in connected representation and distributed over an entire series of columns. With the beginning of the last quarter of the 12 th century, the use of the cushion capital diminishes; in the place of the heavy square block as a basal form occurs the slender bell. The capital with buds (Fig. 24 B) found entrance and soon became a characteristic mark of late Romanesque art. It was succeeded from about 1225 onward by the bell with leaves capital (Fig. 25) as the last stage of the forms of Romanesque capitals. -- The abacus added to the capital is mostly strikingly high, treated with strongly supporting mouldings, and it is decorated by relief orname-

ornament in the richer development.

* *About the same time (1050) "disappear in Germany the reminiscences like the antique."* (Dehio). Further see page 24.

The piers chiefly follow the columns in the forms of their bases, are made in courses, are circular in Norman England and also partly in France and Italy, but in Germany are of square section, originally simple and plain, later with chamfered or coved angles and also frequently with the addition of graceful and slender little columns in the corners. As upper termination they receive a square abacus, chamfered below or moulded with torus, ogee or cove, more rarely ornamented or having its own sculptured capital similar to that of the column. With the development of vaulted construction the pier also received an increasingly richer treatment, while from it projected or were inserted in the angles, rectangular pilasters, half or three-quarter columns, corresponding to the transverse arches and ribs of the vault. (Fig. 11).

Besides columns and piers, Romanesque art also employed corbels as supports, i.e., consoles, that project from the walls and receive the imposts of the vault ribs, if the wall or member of the pier were not prepared for them. (Fig. 26). At first made simple, only reduced below or returned in torus, cove or ogee members; they later also diminish in width downward, and finally have the form of pyramids, deeply moulded or covered by ornamental work.

To the arches rising from the columns and piers is generally lacking the moulded archivolt common in the antique. Likewise the internal walls have no further subdivision; this was not necessary, since the walls were generally covered by a series of pictures. Narrow and slightly projecting belts, at first merely a slab with beveled lower corner, later formed with a flat cove and mouldings, extend above the arcade arches, below the rows of galleries and windows, sometimes also at the height of the uppermost capital, but frequently are entirely omitted. Where recollections of the antique have a stronger influence, or where a more animated effect in relief was intended, the bands were more strongly accented and more richly developed. In this Romanesque the frieze decorations present unusual

variety. Most commonly are found the round arched friezes (see volume 1, pages 143, 157), both in their simplest form, only composed of voussoirs, as well as also with consoles, enclosing mouldings and ornamental work. The arches are sometimes interlaced. The round arched frieze is indeed but seldom employed in the interior (Fig. 63), but so much the more frequently on facades.

Other and frequently recurring forms of friezes are:-- the Romanesque dentils (with dentils set diagonally), the billet moulding, the zigzag, roll, scale, chessboard, lozenge, rope and sphere friezes. (Fig. 27). To these are also added the ornamental frieze developed from plant and animal motives (Fig. 34), which are either entirely freed from a geometrical basis or only subordinated thereto in their main lines.

A very expressive treatment of the walls is effected by the narrow columnar galleries or passages inserted in the thickness of the wall, and gradually occurring instead of galleries, the so-called triforiums (see Fig. 109). If horizontal wooden ceilings still occur, they are no longer divided in panels or coffered, as in the Early Christian basilica, but are sheathed smooth and painted.

The vaults first receive an architectural treatment with the addition of the vault ribs. The gradual transition of the ribs from the rectangular cross section to the compound profile, in which the round always dominates and to the pointed round of the transition style is apparent from Fig. 28. An example of the keystones with very varied forms and ornamentation is given by Fig. 29.

21 In Germany the windows lie in the middle of the wall, but in Italy, Spain, England and a great part of France are at its outer surface. In order to ensure the most favorable admission of light through a relatively small opening, the jambs (the wall surfaces enclosing the door or window opening) are strongly splayed, in Germany both externally and internally, elsewhere only internally. For the closure was glass now generally employed instead of the earlier curtain or wooden shutter, and this quite early reached an artistic use by its composition in different colors and patterns with the leading and the true g

glass painting. (See page 98). In the early and best periods the window openings are almost always covered by a round arch. They are frequently coupled, especially on the towers, i.e. divided into two, three or more openings by the insertion of dwarf columns. Above the little columns then lies an impost extending through the entire thickness of the wall. With a more elegant construction (Fig. 30), the window jambs are subdivided, either recessed externally in steps with the addition of small columns in the angles thus formed, or even furnished with an enclosing member, in which the rounds predominate. The late period introduced new forms of arches, among the impulses coming from the East by means of the crusades, among which occasionally occur even the horseshoe and foiled arches. A permanent element of mediaeval art became the trefoil arch, and especially the pointed arch, the latter gradually almost entirely supplanting the round arch. A new idea was also formed by the rose or wheel window as a great circular opening in the wall, subdivided by inserted columns like spokes or by bars, and which was preferably arranged in the gables or over the entrances. (Fig. 31).

Great attention was devoted to the construction of entrance doorways, especially those of the main portals. In the early and best periods they are likewise spanned by round arches, later in part by pointed and trefoil arches, but they generally have a straight lintel over the actual doorway, in order to obtain a semicircular tympanum for the addition of relief ornament. (Fig. 48). The unusual thickness of the walls already required, so that the House of God might be quickly emptied, a funnel-shaped splaying of the jambs. With the most common mode of treatment, these are subdivided in several rectangular steps; in the resulting angles were then set columns or rounds with simple or richer and varied treatment. (Fig. 32). Thus sometimes square-edged piers alternate with round columns on the jambs of the portals, and that are also continued in the arches, enclosing the tympanum like a frame. The later period yet enhanced the magnificence of the portal by the addition of statues, which were then preferably placed in the angles of the square piers, hollowed out for them and on small pedestal columns. (Figs. 48, 75).

The external architecture in its general appearance permits the ground plan of the church structure to be clearly recognized; we see the nave with the middle aisle above the side aisles, the crossing of nave and transepts, the choir or choirs with the apses and the massive towers, that animate the entire organism and strengthen it in a sense. The external structure commences with a plinth, whose upper member is profiled like the Attic base, as a rule. It extends around the entire building. Above it rise projecting narrow wall strips, by which the external wall surfaces are divided into bays, in the middle of which lie the windows. (Figs. 9, 36, 44, 45). Instead of the wall strips are also frequently employed slender half columns (Fig. 18) or pilasters with bases and capitals. In the later period the wall strips project further from the face and thus increase the thickness of the wall, then corresponding to the internal supports. Finally they pass into the buttress reduced upward by several offsets. Below the roof cornice, the belts and inclined gables, the wall strips are connected with the round arched frieze, so particularly characteristic of Romanesque architecture. (Fig. 33). The apses frequently have a preferred treatment by blind arcades. Horizontal subdivisions of the external walls by belt courses are usual in Italy, France and England, but in Germany are scarcely found except on towers, where they serve for the division into stories, and as a rule are furnished with the Romanesque dentil band and other decorative forms. The exterior of a great cathedral receives the most splendid architectural decoration by the triforium extending below the base of the roof as a dwarf gallery; these are particularly favored along the Rhine, and are wonderfully beautiful on the cathedrals of Spire, Worms, and on the churches of Cologne. (See Figs. 17, 36). A main cornice, of form similar to the belt cornice but more strongly accented, and having round arches and other frieze decorations above each other and often greatly varied, forms the upper termination of the external wall surfaces. Besides the ornamental forms mentioned on page 20, Romanesque ornament (Fig. 34) yet takes an important part in the decorative treatment of the architecture. Derived from antique tradition, th-

that was not transmitted in its original purity, influenced by Byzantine and Syrian-Early-Christian conceptions, and dominated by the expressed desire to please in the most varied changes, it soon passed into a peculiar development. As basal elements are to be designated geometrical patterns and interwoven bands in often irregular combination, plant motives, animal and human figures. Since skill in stonecutting was frequently lacking to the stonemasons, the acanthus forms pass into dry and ragged shapes and almost entirely disappear at about the middle of the 11th century. (Indeed these still appear in the 12th century on a series of monuments, for example also on the portals of the cathedral at Spire originating about 1180, charming acanthus leaves in Grecian treatment, which indeed indicate a direct connection of their designer with the East by the relations resulting from the crusades. (See volume 1, page 198). Plant motives employed in Romanesque ornament are not conceived naturally, so that one might recognize a particular kind of plant, but they are treated purely conventionally and are strongly conventionalized. They are mostly leaves with three, four or five divisions with strongly expressed ribs and lancet or rounded lobes and margins, added to the bands and scrolls and subordinate to these. Generally certain bands, leaf ribs and edges are beset by rows of beads or lozenges, that recall the nail heads of armor. Animal and human figures, fabulous beings and symbolical forms of all kinds pass over directly into the foliage, scrolls and bands, representing Biblical or historical materials, but are frequently only an expression of an animated, very grotesque imagination, saturated with the gloomy and demonic representations of the northern series of sagas. (See volume 1. Animal ornamentation). The technical execution of the ornaments adheres in the earlier time to the flat incised handling of Lombard ornamentation (see volume 1), but later passes into representation in relief, with skilful figures in sharp cutting, wrought almost free, and an intense alternation of light and shade. The powerful treatment, the precious freshness and naturalness, and the inexhaustible variety of forms, in which the formative power of the imagination cannot do enough, lend a very particular worth to Romanesque decorative art, even in comparison with the clear

and finely executed ornamental work of the antique.

Monumental sculpture begins in the first half of the Romanesque period with tasteless attempts (bronze doors on the cathedral at Hildesheim, completed in 1055), but it passed through a mighty upward course in the splendid time of the Hohenstaufens, which may be recognized in the rich ornamentation of altars, rood screens, pulpits and portals with statues and sculptures in relief. (See Figs. 48, 75). With all their awkwardness, the figures exhibit the method of a fresh and natural sense, combined with a feeling for style trained by the architecture. In the physical proportions are they still quite defective, in post or movement being still stiff; but they have in their faces a strong and solemnly earnest expression, which evidences a noble and deeply religious conception.

✓ A great problem falls to painting in the Romanesque period.* Over the entire interior of the Romanesque church extended an animated polychrome treatment, by which the architectural members were emphasized, and the wall surfaces and ceilings received a tapestry-like and brightly colored covering. (Fig. 35). In bold and usually black outlines are drawn the ornaments forming the frieze and panels, and the separate surfaces thus enclosed are filled with simple colors without any indications of shades. Likewise in the pictured representations of scenes from the Bible or the life of the patron saint, the figures have no modeling in relief. They are executed in the same manner as the ornaments, conventionalized with refined rhythmic feeling, and they are arranged modestly in the enclosures afforded by the architecture. The deep repose, that rests upon these representations, the warm tones of color poured out over the interiors enhances and perfects the earnest and reverent harmony and surrounds the Christians entering for a contemplative assembly and quiet devotion. Likewise the exterior of the Romanesque church combines in a harmoniously united and rounded entirety. The Rhythmically arranged and graduated masses of the building, which permit a clear recognition of the purpose of the enclosed rooms, presents by its picturesque grouping and highly monumental treatment extremely impressive effects of solemn dignity and augustness. (Figs. 9, 17, 36, 45).

** On the evolution of glass painting, see Chapter 2 of this volume, page 98.*

26 In the general view of the Romanesque architecture of Germany the late time, the period of the transition style, occupies a distinct place. During its entire course is expressed a lively change in the construction and in the architectural forms, a joy in handling and an imagination, such as seldom manifested in the history of architecture. Such times always appear especially accessible to innovations and to foreign influences. Therefore the architectural style developed meanwhile in France, by which the Gothic style was founded, soon found entrance into German lands. Considered in connection, the transition style is characterized by the following chief phases.

Men took over the pointed arch as a vaulting line as well as a new element of decoration, the vault ribs, the polygonal choir ending, that was more suitable for the treatment of the vaults over the choir, than the round apse. Likewise in the arrangement of the ground plan did men gradually become freed from the system restricted to squares, made the middle aisle widen and let the bays continue, so that the middle and side aisles received the same number of vaulting bays. With regard to the ribs were arranged more richly subdivided piers, the doorways and windows were enlarged, and the walls were relieved by increasing the wall strips to stepped buttresses. (Fig. 23). But the round arch still continued in use, though it was supplanted by the pointed arch, especially in the arcades of the middle aisle, and also partly by the trefoil arch. (See the door closure composed of two quadrants and a semicircle in the round arched tympanum of Fig. 32). The latter found a favorite place over doors and windows, and is especially common in blind arcades and triforiums, which enjoy great favor as an effective means for animating the external and internal surfaces of the walls. Also other forms participate in the general movement. The columns become more slender and are usually coupled, i.e. have a common abacus. On the low and deeply coved base the corner leaf disappears, since the lower wide torus projects beyond the angles of the plinth. The shafts receive at the middle the column ring. The heavy cushion capital is

gradually replaced by the lighter and more elegant bell and bud capitals. The heretofore simple and smooth archivolts of the arcades and windows are enclosed by round and cove. The cornices become weaker, more lightly profiled and formed with deeper coves. Finally the profile of the round in the diagonal ribs of the cross vault begins to approach the pointed round. (Fig. 28). With the strong raising of the vaults, the openings in the walls become larger and the buttresses thicker. The roofs ever become more steep; the tower spires higher and more slender. And thus is completed quite gradually and almost unnoticed the perfected transition to the Gothic.

4. Peculiarities of Monastery Churches.

Likewise to western monastic architecture did the era of Romanesque architecture bring the classical age and a term of extraordinary fruitfulness. There were chiefly three ecclesiastical societies, that powerfully influenced the evolution of mediaeval monastic life and architecture; the monastery at Cluny in Burgundy produced by the Benedictine Order (Volume 1, page 182) in the 10 th century, and its daughter establishment, the monastery at Hirsau in Swabia, and the influential monastic Order of Cistercians, likewise a branch of the Cluniacs at about the end of the 11 th century, whose original monastery lies at Cîteaux. (Western France). While the Cluniacs and with the Hirsau monks set as an aim an improvement in ecclesiastical conditions by a reform in monastic life, by an elevation in the customs of the clergy, and the utmost separation of the clergy from secular interests, the Cistercians saw in the return to ~~the severe~~ rules of the Order of S. Benedict their life problem, and indeed they took up ~~these in their~~ most original form, devoted to agricultural activity. Unoccupied and marshy, even unhealthy lands covered by standing water (Cîteaux, cisterns) should be transformed into fertile soil, but the copying of books, painting of miniatures etc., should be dropped. It was infallible, that the principles of the different Orders should be transferred to the architectural style and lead to a definite regulation, which should then by their great extension, the Cluniacs chiefly in France, the Hirsau monks in Germany, and the Cistercians in almost all civilized

lands of the time, won a mighty influence over the entire evolution and spread of mediaeval art.

The building programme already described for monastic designs in volume 1, page 183, the nave church and the arrangement of the separate structures was also substantially retained in the result. An exception from this was made by the Templars, for whom the Dome of the Rock erected at Jerusalem on the site of Solomon's temple (volume 1, page 216) served as a prototype, and who therefore arranged their churches as central buildings with a columnar aisle, and the Carthusians, who prescribed to the monks the hermit's life and thus favored the system of cells.

The architecture of the monastic churches exhibits special peculiarities for the different congregations.

The Cluniacs had for their earlier and more severe architectural type the model in the abbey church of Cluny, dedicated in 981, a horizontally covered, three aisled columnar basilica with eastern transverse aisle, rectangular choir ending, two rectangular chapels as side choirs, and two massive western towers above a vestibule. This scheme of plan was adopted by the German daughter monastery at Hirsau as a model for the churches erected by it and its congregations. The later Burgundian school in the climax of the Cluniac Order abandoned their former principles of simplicity in design and equipment instead of the previously erected churches of the Order. The building constructed in 1089-1095 and 1131 (Fig. 38) contained five aisles, two transverse aisles and five radially arranged chapels. Further the transepts were each enlarged by two apses on the eastern side. About 1220 the building was yet extended by a three aisled pro-church belonging to the transition style. Thereby was attained the length of the old church of S. Peter in Rome. For the internal equipment were employed costly materials, in part even Pentelican marble. The exterior received a grand treatment by the animated subdivision of the architectural masses and the seven towers (over the crossing, the intersection of the inner side aisle with the larger transverse aisle, at the western angles of the transverse aisle, and on the western façade. The Cluniacs in their later buildings followed the model afforded by the principal church of t

and even, even with a corresponding simplification in the
 and execution. Their model churches are always three aisled
 with single aisle choir, eastern transverse aisle and a vest-
 ibule. They carefully avoid the crypt, have a second choir
 with aisle and radially arranged chapels (as at S. Martin's
 church in Bonn; volume I, page 151), tunnel vaults with cross
 paces in the middle aisle and cross vaults in the side aisles.
 Instead of galleries, triforiums extend below the windows of
 the choir, and the transept and the apse are treated as
 have levelled the pointed arch (it is already found in the eve-
 arch of the principal church at Osnabrück, but the
 round arch persists in the windows and decorations. A regular-
 ity in the use of the three-aisled church is maintained
 by the classic treatment of the three-aisled church, which
 as projections from the choir, from which comes the compound
 choir in style.

The chief activity of the French works falls in the 12th be-
 tween 1100 and 1150. Their churches are three-aisled, choir-
 transept and apse, and often a crypt below the choir.
 choir, eastern transverse aisle and rectangular enclosed cho-
 ir with two rectangular side chapels as side choir. Two mas-
 sive western chancels flank the vestibule. Occasionally, instead
 of them is erected a crowning tower, to which are added two e-
 eastern towers. The middle aisle is covered by a triforium; the
 side aisles have simple cross vaults. An earnest and difficult-
 as equipment is regular to the monastery churches of the 12th
 century. They exhibit a certain similarity in the form
 and, except only certain capitals, even in their form the ex-
 cess of the columns without corner leaves, and also generally
 and the choir and apse. The choir and apse are
 is in use, and the western tower was built in the 13th
 primitive form, after its general effect had been much influen-
 ced by the choir and apse. The choir and apse have disappeared with
 remains. In the abbey church at Vézelay in Burgundy is still
 presented a complete representation of the severe style.
 Yet greater than of these two Orders was the part of the
 regions, whose construction was founded in the year 1100
 (Cistercians) in northern Burgundy, in the diocese of

the Order, even with a corresponding simplification in plan and execution. Their model churches are always three aisled with single aisled choir, eastern transverse aisle and a vestibule. They carefully avoid the crypt, have a second choir with aisle and radially arranged chapels (as at S. Martin's church in Tours; volume 1, page 181), tunnel vaults with cross arches in the middle aisle and cross vaults in the side aisles. Instead of galleries, triforium extend below the windows of the clearstory. In the construction and the arcades of the nave prevail the pointed arch (it is already found in the arcades of the principal church at Cluny just mentioned), but the round arch remains in the windows and decorations. A peculiarity in form is shown by the Cluniac churches in architecture by the classicistic treatment of the fluted Corinthian pilasters as projections from the piers, from which comes the compound pier in steps.

The chief activity of the Hirsau monks falls in the time between 1080 and 1150. Their churches are three aisled columnar basilicas with vestibule, over which a gallery opens to the interior, eastern transverse aisle and rectangular enclosed choir with two rectangular side chapels as side choirs. Two massive western choirs flank the vestibule. Occasionally instead of them is erected a crowning tower, to which are added two eastern towers. The middle aisle is covered horizontally; the side aisles have simple cross vaults. An earnest and dignified equipment is peculiar to the monastery churches of the Hirsau monks. They restrict themselves exclusively to the round arch, employ only cushion capitals, even at first form the bases of the columns without corner leaves, and also generally omit the wall strips and arched frieze. To the Hirsau monks is it due, that the basilican scheme was again restored to its primitive form, after its general effect had been much influenced by additions and extensions of many kinds. The mother churches of the Cluniacs and Hirsauers have disappeared with few remains. In the abbey church at Vezelay in Burgundy is still presented a complete representation of its severe style.

Yet greater than of these two Orders was the part of the Cistercians, whose congregation was founded in the year 1085 at Citeaux (Cistercium) in northern Burgundy, in the history of

of activity in the domain of architectural colonization as
of all others have key. Fixtures for their church architecture
in, they established a limitation to the necessary and the ne-
cessary as the nature rule. The towers could be dismissed with
only a wooden roof turned over the crossing to receive the an-
all bell was desired justifiable. The crypt was everywhere
omitted. As a normal around plan remained the cross-shaped
casualties with relatively narrow and elongated nave, a single
transverse aisle, whose transepts were extended by small chap-
els at the eastern side (see around plan in Fig. 11) and
a rectangular enclosed choir. The number of chapels was in-
creased the more the more the more the more the more the more
as small rectangular cells around the entire choir and the es-
tern side of the transverse aisle, sometimes as a double aisle
le (Fig. 12), each of them covered by a common shed roof, ex-
tended the more the more the more the more the more the more
all preferred the horizontal ceiling, but soon passed to vault-
ing, those improvement by the introduction of the pointed ar-
ch, those pointed arches in France. The transition to the
pointed arch near Worms, 8-10, found in 1101, is the first German
building with pointed vaults and an entire transept of Roman-
esque form. The transept and choir of Worms Cathedral
without galleries and triforium, without pinnacles on the west-
end without choir in the windows. For the capitals was pre-
sented the bell form, other than to exactly decorated by
foliate. The cornel-like sculpture of the large round (Fig.
13). The more the more the more the more the more the more
developed in France, in regard to the arrangement of bays of
equal length, the construction of apertures arches etc. Thus
the transition to the pointed arch in the 12th century
character of its style vanished after the middle of the 13th
century. Of the numerous well preserved Cistercian abbots

mediaeval architecture. Their zealous, self-denying and useful activity in the domain of agricultural colonization soon assured to them great popularity and extension, so that they finally attained to a spiritual power, to which the importance of all others gave way. Likewise for their church architecture, they established a limitation to the necessary and the useful as the supreme rule. The towers could be dispensed with; only a wooden roof ~~turret~~ over the crossing to receive the small bell was declared justifiable. The crypt was everywhere omitted. As a normal ground plan remained the cross-shaped basilica with relatively narrow and elongated nave, a single transverse aisle, whose transepts were extended by small chapels at the eastern side (see ground plan b c d in Fig. 186) and a rectangular enclosed choir. The number of chapels was increased toward the end of the 12th century. They are arranged as small rectangular cells around the entire choir and the eastern side of the transverse aisle, sometimes as a double aisle (Fig. 39), each of them covered by a common shed roof extending around. The German Cistercian monasteries at first still preferred the horizontal ceiling, but soon passed to vaulting, whose improvement by the introduction of the pointed arch, they utilized earliest in Germany. (The Cistercian at Bronnbach near Wertheim-a-M, founded in 1151, is the first German building with pointed vaults and an entire retaining of Romanesque forms). The interior remained almost without decoration, without galleries and triforium, without paintings on the walls and without color in the windows. For the capitals was preferred the bell form, either plain or sparingly decorated by foliage. The corbel-like supports of the large rounds (Fig. 40), (indeed for reasons of economy), is an architectural peculiarity of the Cistercian churches. The clear, assured and direct technics held equal pace with structural acquisitions developed in France, in regard to the arrangement of bays of equal length, the construction of supporting arches etc. Thus the Cistercian art in the wide regions of its extension prepared the ground for the Gothic, in whose stream the individual character of its style vanished after the middle of the 13th century. Of the numerous well preserved Cistercian abbeys,

exceeding the original severity and modesty of the rules of the Order.

5. Extension in the different countries and the monuments.

I. Germany, Austria and Switzerland.

German architecture produced in the Romanesque period, the best and most splendid see of the German nation, such as an entire kingdom of monuments, that we must restrict ourselves to mention only the most important. Likewise we have before us not few of these in their original condition. Most are so changed by rebuilding, that only certain architectural traits date back to the time of their origin. In the general view of the Romanesque art of Germany before the most important creations of three great architectural schools:-- the Rhine provinces, the Saxon lands and Westphalia. Everywhere are reflected the racial peculiarities of the monuments in the construction and execution of the buildings.

The Saxon provinces at first took the lead, just as in political affairs, so likewise in art. In their work is expressed a desire to secure firmly to Gothic architecture traditions and for strict order in ground plan and structure. Most common is the ground plan of the church, consisting of a nave and two massive western towers. To the eastward with horizontal ceiling, double cross, double transverse aisles and an elevation of two columns with one pier before the east end and each-ascending canopy of St. Michael at Hildesheim (Fig. 1, 2). Built in 1001-1028, later rebuilt after the old plan and dedicated in 1128, the cathedral (1128-1190), and the well preserved and richly decorated church of St. Gudmund in Hildesheim (1143-1173). (Fig. 42). In simple cross form is situated the castle or foundation church in Gerdshausen (1070-1120). Of the earlier monuments are mentioned the church at Gerdshausen, founded in year 960, and the monastery church at Beckinghausen (1117-1120). The latter as the pattern plan of the normal Saxon basilica (Fig. 1, 3). Pure columnar basilicas are employed only in

the monastery at Maulbronn in Wurtemberg furnishes the most famous example, in regard to the equipment, indeed frequently exceeding the original severity and modesty of the rules of the Order.

5. Extension in the different countries and the monuments.

I. Germany, Austria and Switzerland.

German architecture produced in the Romanesque period, the best and most splendid age of the German nation, such an astonishing abundance of monuments, that we must restrict ourselves to mention only the most important. Likewise we have before us but few of these in their original condition. Most are so changed by rebuilding, that only certain architectural parts date back to the time of their origin. In the general view of the Romanesque art of Germany belong the most prominent creations of three great architectural domains:-- the Rhine provinces, the Saxon lands and Westphalia. Everywhere are reflected the racial peculiarities of the occupants in the conception and execution of the buildings.

The Saxon provinces at first took the lead, just as in political affairs, so likewise in art. In their works is expressed a desire to adhere firmly to Carlovingian traditions and for strict order in ground plan and structure. Most common is the normal type of the cross-shaped basilica with round choir, side apses in the cross aisle, alternation of supports in the nave and two massive western towers. To the basilicas with horizontal ceiling, double choirs, double transverse aisles and an alternation of two columns with one pier belong the grand and epoch-making church of S. Michael at Hildesheim (Figs. 8, 41), built in 1001-1033, later rebuilt after the old plan and dedicated in 1186, the cathedral (1122-1190), and the well preserved and richly decorated church of S. Godehard in Hildesheim (1132-1172). (Fig. 42). In simple cross form is arranged the castle or foundation church in Quedlinburg (1070-1129). Of the smaller monuments with simple alternation of pier and column are to be mentioned the church at Gernrode, founded in the year 960, and the monastery church at Hecklingen (1117-1170), the latter as the pattern plan of the normal Saxon basilica. (Figs. 1, 2). Pure columnar basilicas are employed only by t

the monastery church at Paulinzelle, (founded 1105), yet remaining in picturesque ruins, and the canons' foundation at Haersleben (founded 1112). Pure pier basilicas are the cathedral at Bremen (about 1050), the Liebfrauen church at Halberstadt (begun 1135), and the beautiful foundation church at Königsliutter (begun 1135), of which the choir and transverse aisle are already covered by cross vaults (without ribs). Aside from the cathedral at Brunswick (1173-1194), a vaulted pier basilica with restricted ground plan and still purely Romanesque forms, a complete vaulting was first received by the buildings of the transition style, which indeed retained the restricted system of ground plan, and likewise the round arch in the portals and windows, but otherwise introduced the pointed arch and the decorative innovations:-- the cathedral at Naumburg with double choir (middle building dedicated 1242), the cathedral at Halberstadt (1181-1220), the Liebfrauen church at Arnstadt, the cathedral at Magdeburg (begun 1209), whose structure already appears entirely Gothic, and the cathedral at Freiberg-i-S, but of which only the famous "golden portal" with the masterly and formerly gilded statues was saved in the Gothic rebuilding. Among the Cistercian churches erected in the ancient Saxon soil is most interesting that of Riddagshausen near Brunswick, dedicated in 1278) (Fig. 39). The outer aisle of the choir is covered by a low, and the second by a high shed roof, so that the choir end shows three roofs like terraces rising above each other.

In Westphalia the buildings take a course directed toward the simple and practical, that first of all regards the fulfillment of the nearest needs, with solid construction and without placing great value on ornamental accessories. The churches are mostly pier structures in hall form (with aisles of equal height, page 12), with cross vaults, that occur very early in the already mentioned chapel of S. Bartholomaeus at Paderborn. (Page 6M). The cathedrals at Paderborn and Minden are cross-shaped hall churches, the former with rectangular enclosed choir, the latter with a Gothic choir. The imposing cathedral at Soest was originally a pier basilica with a horizontal ceiling, but still received its vaults in the Romanesque period.

Among the Westphalian buildings of the transition style stands the church at Münster (1835-1861), likewise a high basilica in the restricted system with double choir, the magnificent church of St. Reinold in Dortmund (cross-ribbed basilica), and among the Ottonian designs the severe monastery church at Verden (1033).

The same provinces, in which crossed rather than the Roman ones developed their art and civilization, on whose soil only Christianized flourishing and numerous cities, likewise brought Roman art and architecture to the West. The art of the West was a people particularly favored by nature were composed an elevated spirit of a religious tendency with a civic sense of enterprise. That crossed towards artistic activity and especially in the stand structural ideas in works of highly monumental form and the richest equipment. From the early period date the Abbey church at Limburg-a-B (about 1024) and the incomparable church at Speyer (about 1040). The latter, which remained only in ruins. The best period was introduced by the chief works of Romanesque art, the great cathedrals of Speyer, Worms and Trier. They were built in the West, and the art of the West was the most important in their first design. The cathedral of Speyer preceded in time, at least in its extant form. It was erected by the emperor Heinrich IV in place of an earlier structure (built between 1020 and 1060) between 1060 and 1100 as a cross-shaped basilica with western vestibule, an ornate nave with seven bays in the middle aisle (Fig. 4). A roomy choir as a central place for the altar (Fig. 48), a roomy choir as a central place for the altar (Fig. 48), two conical towers (over the crossing and the vestibule) and four slender square towers in the eastern angles of the nave. The nave (Fig. 17) with the vestibule and nave. The clarity and beauty of the proportions of its masses and the grand and majestic effect of the interior is attained by means of one of the other two cathedrals. The cross vaults were all executed without ribs or the cathedral of Worms. The

Among the Westphalian buildings of the transition style stand in the first place the cathedral at Osnabrück (1256-1291), a vaulted pier basilica with octagonal crossing structure, the cathedral at Münster (1225-1261), likewise a pier basilica in the restricted system with double choir, the magnificent church of S. Reinold in Dortmund (cross-shaped basilica), and among the Cistercian designs the severe monastery church at Marienfeld (1222).

The Rhine provinces, in which blessed region the Romans once developed their art and civilization, on whose soil only originated flourishing and populous cities, likewise brought Romanesque architecture to its most splendid development. Here in a people particularly favored by nature were combined an elevated spirit of a religious tendency with a civic sense of enjoying life, that pressed towards artistic activity and embodied its grand architectural ideas in works of highly monumental form and the richest equipment. From the early period date the abbey church at Limburg-a-H (about 1034) and the foundation church at Hersfeld in Hesse (about 1040), both horizontally covered and spacious columnar basilicas, today remaining only in ruins. The best period was introduced by the chief works of Romanesque art, the great cathedrals of Spires, Mentz and Worms. They are entirely vaulted in accordance with the restricted system of the Romanesque, but were erected as horizontally covered basilicas in their first design. The cathedral of Spires precedes in time, at least in its existing form. It was erected by the emperor Heinrich IV in place of an earlier structure (built between 1030 and 1060) between 1080 and 1100 as a cross-shaped basilica with western vestibule, an unusually large nave with seven bays in the middle aisle (Figs. 4, 43), a roomy crypt as a burial place for the Salic imperial house, two domical towers (over the crossing and the vestibule), and four slender square towers in the eastern angles of the transverse aisle (Fig. 17) with the vestibule and nave. The clarity and beauty of the proportions of its masses and the grand and spacious effect of the interior is attained by neither one of the other two cathedrals. The cross vaults were still executed without ribs on the cathedral of Spires. The rib-

ribbed vaults in the cathedral of Mentz were first added at a later time, which may be determined from the form of the piers not intended therefor. It is highly probable that this was also the case on the cathedral at Worms. The cathedral at Mentz was erected from 1081-1137 in place of an earlier structure, already existing from 778 to 1050, as a cross-shaped basilica with a shorter nave (five bays), western choir and small crypt, two massive domical towers and four smaller polygonal flanking towers. (Fig. 44). Likewise the cathedral of Worms had a precursor in a building erected from 1000-1025, but was constructed in its present form from 1171-1234. It is also arranged as a cross-shaped basilica with doubled choir, the nave with five bays, without a crypt, but having two polygonal and four round flanking towers. Its external appearance has an extremely grand and picturesque effect.

With the most prominent Romanesque buildings of the Rhine provinces is also reckoned the Benedictine abbey church at Lorsch near Andernach, a cross-shaped pier basilica with western choir (1093-1156), before which is placed a "paradise" as an enclosed uncovered portico, and with six towers, in plan and structure a bold and noble work (Figs. 6, 45). The picturesque minster at Bonn also has a doubled choir. The beautiful parish churches at Andernach and Sinzig exhibit galleries over the side aisles, have round arcade arches between pointed cross arches.

The church of S. Castor in Coblenz (1157-1201), a pier basilica with four towers, is vaulted in the restricted system. The parish church at Boppard (about 1200) has in its middle aisle a pointed tunnel vault subdivided by cross arches. Opposite Bonn and on the other bank of the Rhine stands the beautiful church of Schwarzerheindorf (1149-1151), that affords an example of the generally common type of the castle and fortress chapel, while it exhibits two stories on the same ground area, that ^{are} connected by an opening in the ceiling. The upper story was intended for the nobles, the lower being for the servants or even a tomb chapel. In Cologne, the ancient Roman city, several important churches originated with peculiar and the richest treatment of the choir and transepts. At S. Maria

in-Capitol (dedicated 1049), the church of the Apostles (second half of the 12 th century) and Great S. Martin (dedicated 1172), the choir plan approximates to the central system, while the arms of the cross also terminate in apses (as at the church of the Nativity in Bethlehem; see volume 1, page 162) and the side aisle extends around as the choir aisle (Fig. 46). S. Gereon appears entirely as a decagonal central building, that was extended in 1069 by an elongated choir ending in semicircular form. The church has a splendid and spacious crypt. Likewise at the church of S. Quirin at Neuss, built after 1207, is repeated in the eastern portion the triapsal ground plan of the first mentioned churches at Cologne. Its windows exhibit peculiar forms, the fan, trefoil, and the like (Fig. 47). It is the principal work of the transition style of the lower Rhine, which was particularly accessible to such innovations. As the chief buildings of the transition style of the middle Rhine and of Hesse are to be mentioned the great cathedral at Limburg-a-L. (1213-1342; Figs. 9, 16, 37), a cross-shaped basilica with round choir ending and inner choir aisle, in which the galleries and triforiums have pointed arches and are continued above the side aisles, together with the magnificent parish church at Gelnhausen, equipped with the richest ornamental work.

In the region of the upper Rhine, the minster at Basle, erected in 1185, a vaulted basilica arranged in cross form on the restricted system with five aisles, a choir aisle and two western towers, is reckoned with the best creations of the transition style. Likewise the two principal works of the Gothic period, the minsters at Freiberg-i-B. and at Strasburg-i-E., the beginnings of the structures still belong to the Romanesque period, the transverse aisle and the eastern towers of Freiberg minster, from the first half of the 13 th century, and of Strasburg minster, the entire eastern structure, begun in 1179 and finished about the middle of the 13 th century, with the double portal represented in Fig. 48.

In Alsace the Romanesque buildings exhibit the German traits, much permeated by French and Italian influences, with an earnest and heavy character. The church of Ss. Peter and Paul at

...restored in 1949 but restored in the 15th century.
...strongly recalls the work of the western facade without
...towers but succeeded in round arched hallways. Otherwise
...the Alsatian character, are mostly cross-shaped with bastions
...with a crossing tower, two square western towers, between which
...in lines a double portico, frequently with rectangular choir
...and frequent ornamentation interwoven with fanciful floral
...and human forms. The abbey church of St. Marbach (1816) execution-
...ally places two towers over the two ends of the transverse aisle.
...The normal Alsatian type is presented by the eastern side-
...way church of Hattenhausen, the well preserved church of St. E.
...flies at Hattenhausen, and the richly treated church at Gengen-
...stein, in which the transition style appeared quite early (11th
...was begun in 1080).

In Swabia and Bavaria, Romanesque buildings bear the recog-
...nition of an independent style-forming power. In the crea-
...tion of the interior than in the exterior. In the exterior
...because the influence of the French and Ottonian schools of
...architecture the Romanesque style was frequently enriched. On
...the contrary men tried to place two side choirs beside the main
...in choir and emphasized the eastern side by the tower erected
...there. In the ornamentation occurs a luxuriant though noble
...expression of forms in a richness rivaling the Baroque con-
...tion with wonderful animal and human figures, which are charac-
...teristic of the Romanesque as a whole. The ceiling remains
...mostly horizontal; only at a later time was vaulting decided.
...The cathedral at Augsburg, a rich basilica with double
...choir, a western transverse aisle and two eastern towers, com-
...es from the first half of the 11th century, but was later re-
...on rebuilt. The cathedral at Regensburg (1003-1005) is famous
...for its choir adorned by fanciful sculptures. Regensburg
...is the richest city of south Germany in Romanesque churches.
...Its most important monuments are: St. Emmeran (1003-1005), a
...chapel with double choir, double crypt, and a magnificent choir-
...ter level beside the choir, the upper chapel, and the west-
...ern church (St. Jacob), derived from the first school and well
...known for its rich portal. (Fig. 43). The Swabian monuments
...are distinguished by great richness of ornament. In Hirsau

Rosheim, dedicated in 1049 but restored in the 12 th century, strongly recalls Tuscan works by its western facade without towers but subdivided in round arched galleries. Otherwise the Alsatian churches are mostly cross-shaped pier basilicas with a crossing tower, two square western towers, between which lies a gabled portico, frequently with rectangular choir and luxuriant ornamentation interwoven with fanciful animal and human forms. The abbey church S. Murbach (1216) exceptionally places two towers over the two arms of the transverse aisle. The normal Alsatian type is presented by the earnest abbey church of Mursmünster, the well preserved church of S. F. F. at Schlettstadt, and the richly treated church at Gebweiler, in which the transition style appeared quite early (it was begun in 1082).

In Swabia and Bavaria, Romanesque buildings permit the recognition of an independent style-forming power, less in the creation of the interior than in the decoration. In the churches outside the influence of the Hirsau and Cistercian schools of architecture the transverse aisle was frequently omitted. On the contrary men liked to place two side choirs beside the main choir and emphasized the eastern side by the towers erected there. In the ornamentation occurs a luxuriant though noble expression of forms in a richness rivaling the Barocco conception with wonderful animal and human figures, which are perhaps to be regarded as profound symbols. The ceilings remain mostly horizontal; only at a later time was vaulting decided upon. The cathedral at Augsburg, a pier basilica with double choir, a western transverse aisle and two eastern towers, dates from the first half of the 11 th century, but was later much rebuilt. The cathedral at Freising (1160-1205) is famous for its crypt adorned by fanciful sculptures. Regensburg is the richest city of south Germany in Romanesque churches. Its most important monuments are:-- S. Emmeran (1020-1052), a plan with double choir, double crypt, and a magnificent cloister lying beside the church, the upper minster, and the Schotten church (S. Jacob), derived from the Hirsau school and well known for its rich portal. (Fig. 49). The Swabian monuments are distinguished by great richness of ornament. In Hirsau w

was erected in 1059-1071 the church of S. Aurelius, and beside it in 1082-1091 the church of S. Peter as the mother church of the Hirsau congregation. These were followed by the abbey church at Alpirsbach (founded 1095) and the foundation church at Ellwangen, begun 1146 and completed 1233, influenced by the cathedral at Worms, the first basilica of Swabia, that was completely vaulted. To the transition style belongs the pretty chapel of Walderich at Murrhardt (Fig. 50). The minster of Schaffhausen likewise exhibits the Hirsau scheme, and also the minster at Constance (1054-1089), later transformed entirely into Gothic. The Cistercians had in Maulbronn in Swabia, in Bronnbach near Wertheim and Ebrach in Franconia their most important settlements in south Germany. The plan of the monastery of Maulbronn is more fully described in the second Chapter (Fig. 186). Of the many churches on the island of Reichenau belonging to the early period, the minster at Mittelzell is a stately pier basilica, the smaller church of Oberzell (Fig. 3) being a columnar basilica. In the parish church at Reichenhall and the church on the Petersburg near Dachau occur the alternation of supports. In southern Bavaria are also to be mentioned some hall structures, among them being the Benedictine church at Prül near Regensburg, dedicated 1110, one of the oldest completely vaulted churches of Bavaria. To the transition period is referred the older portion of S. Sebald in Nuremberg, dating from the first half of the 13th century. The most splendid creation of Romanesque art in Bavaria and in Middle Germany is the cathedral at Bamberg, whose first building was dedicated in 1012. In its place and after a fire in the year 1081 was erected a second building, dedicated in 1111. The existing third structure (Fig. 51) originated between 1192 and 1237 as a cross-shaped vaulted basilica with double choir, on which may be recognized manifold influences of Rhenish buildings. In Switzerland, next to the minster at Basle, the most important churches are the great minster and the Frauen minster at Zurich, simple and severe buildings with rectangular choirs.

The Austrian provinces adhere in church architecture to the south German type of plan without transverse aisle, with three

western areas and two facing towers. In the richly treated columns, capitals and the architectural and ornamental treatment is frequently expressed the influence of the works of antiquity. In the church of S. Peter at Salisburg (1131) was introduced by Roman Augustinian canons the alternation of arches (of two columns between two others), that also found its way into other structures. The beautiful monastery church at Göttingen (Göttingen), built 1148-1165, appears to be influenced by the Hirsau school (see fig. 58); the rich ribbed vaults were to be designated the noble cathedral at Götting, a stately three-aisled choir basilica with transverse aisle, that does not project beyond the side aisles, and a subterranean crypt, whose cross vaults rest on a hundred marble columns. To the transition style belong the Abbey churches at Trier and Tübingen, exhibiting a rich decorative magnificence, and the Gistersey monastery of Hildesheim, Hildesheim and Götting.

In the north German Lowlands, in the lack of a more suitable material, the earliest Romanesque churches were built of brick. Many of the artistic features found scattered there (rounding arches, etc.) are also found in the brick churches of the north.

One of the churches of S. Michaelis at Schleswig (about 1100) or in sandstone (as the cathedral at Havelberg; 1133-1170). About the middle of the 12th century and under influences from Holland and upper Italy, men advanced to the brick construction already described on page 16, for which by a proper treatment of the material were found the most suitable art forms.

So far as they were not already known from foreign models, from upper Italy was brought the perspective of the vaulted dome, among other elementary forms, which however retained an essence of sandstone. (Its peculiar form and otherwise have resulted of itself from the direct transition of the original shape to the square plan). The need of other ornamentation was satisfied by friezes with consoles, interlaced round arches, or, set diagonally (Romanesque dentils) and slightly projecting, would bricks, with the decorative treatment of the facade, strongly accentuated elevation of forms. Among the monuments in the first rank the monastery church at Götting,

eastern apses and two facade towers. In the richly treated columnar portals and the architectural and ornamental treatment is frequently expressed the influence of the works of upper Italy. In the church of S. Peter at Salzburg (1131) was introduced by Saxon Augustinian canons the alternation of supports (of two columns between two piers), that also found imitation in other structures. The beautiful monastery church at Seckau (Steiermark), built 1142-1195, appears to be influenced by the Hirsau school (see Fig. 52); the rich ribbed vaults were built later). As a chief work of Austrian-Romanesque art is to be designated the noble cathedral at Gurk, a stately three-aisled pier basilica with transverse aisles, that does not project beyond the side aisles, and a splendid crypt, whose cross vaults rest on a hundred marble columns. To the transition style belong the abbey churches at Trebitsch and Tischnowitz, exhibiting a rich decorative magnificence, and the Cistercian monasteries of Heiligenkreutz, Lilienfeld and Zwettl.

In the north German lowlands, in the lack of a more suitable material, the earliest Romanesque churches were built of fragments of the erratic boulders found scattered there (foundling stones), partly also in imported tufa (like the central structure of the church of S. Michaelis at Schleswig (about 1100) or in sandstone (as the cathedral at Havelberg; 946-1170). About the middle of the 12th century and under influences from Holland and upper Italy, men advanced to the brick construction already described on page 16, for which by a proper treatment of the material were found the most suitable art forms, so far as they were not already known from foreign models. From upper Italy was brought the trapezoidal capital (Fig. 23 B) among other elementary forms, which however retained an abacus of sandstone. (Its peculiar form must otherwise have resulted of itself from the direct transition of the circular shape to the square slab). The need of other ornamentation was satisfied by friezes with consoles, interlaced round arches, bricks set diagonally (Romanesque dentils) and slightly projecting moulded bricks, with the decorative treatment of the facades by strongly accented alternation of joints. Among the monuments stands in the first rank the monastery church at Jerichow, built

built 1147-1152 (near Tangermunde), a three aisled, cross-shaped columnar basilica with horizontal ceiling (Fig. 53); further the great cathedral at Ratzeburg, begun in 1178 as a regular cross-shaped pier basilica with rectangular side choirs, vaulted on the restricted system without diagonal ribs, and the cathedral at Lübeck, founded in 1173 as a Romanesque cross basilica, later transformed into a Gothic hall church. The monastic churches at Diesdorf (1161-1188) and at Arendsee are cross-shaped vaulted basilicas in the commencing transition style, whose latest climax is represented by the beautiful Brandenburg Cistercian churches at Chorin and at Lehmin in 1182-1262. (Fig. 15).

II. Scandinavia.

In Scandinavian lands Christianity acquired full control first in the second half of the 12th century. The churches of the southern architectural domain, in Denmark, on Zealand, the island of Gothland in southern Sweden and Norway, were chiefly dependent on German stone construction; thus the cathedral at Ribe (Jutland), begun in 1176 and treated in the Rhenish style, as well as the cathedral at Roskilde (Zealand), built after 1191 and following French and German influences, and the stately cathedral at Lund (southern Sweden), dedicated 1145 but only completed about 1200, a vaulted normal basilica of the German kind with transverse aisle, two facade towers and peculiar northern ornamentation, that perhaps is permeated by Byzantine-Grecian forms. (Fig. 54). On the island of Gothland the hall type is at home. It is represented by the churches at Dalham, dedicated 1209, and at Wisby, by S. Clemens, S. Drotton and the cathedral. (dedicated 1225). On Bornholm, in southern Sweden and Jutland remain still a considerable number of round stone churches, consisting of a circular central building in several stories with middle pier, annular vaults and an added choir. They refer back to the prehistoric German round castles and were fortified for protection from the piratical incursions of the Vikings. * In Norway's stone architecture the English-Norman influence predominates, to which refer the heavy round piers, the folded capitals, and the zigzag ornaments of the archivolt. (Fig. 78). The cathedral at Stavanger (1128-

1150) is a basilica with horizontal ceiling. Of the cathedral
verses aisle and the sacristy still belong to the Romanesque
period.

* The fortress-like enclosure of most Romanesque churches has often
been referred to in volume I, page 188. Distinctive simple
alliance churches in the times frequently adopted by wars were
often equipped for defense by a construction of the tower sur-
rounding the entrance, making it capable of defense. Even the
cemetery surrounding the church is frequently included within
this kind of fortification.

A Romanesque church in the 12th century is preserved in Norway and
Sweden, the most important being at Urnes (about 1050), at
Bjerkedal (first half of the 12th century), Hitterdal (end of
12th century), at Sol (now transferred to Oskarsdal near Op-
pland) and at Wang (Wang), this transferred in 1844 to Br-
nneberg in the Silesian Erz mountains. In them is preserved
the primitive German and Slavic mode of construction develop-
ed into a style corresponding to the Romanesque and the Gothic
conditions. The basal fort seems to have been derived from
the northern house and temple (volume I, page 188), but in ve-
ry early received influences from the British Isles and as-
sone architectural which already appear in the forms of certain
in the Romanesque style. The church at Urnes
(1150) consists of a nearly square principal room carried on high
and enclosed by wooden trunks like bastions, around which a cor-
no exterior on all four sides, each representing the plan of the
side aisles. Because the main entrance is the small square
portal channel, generally ending in an aisle. Around this inner
room runs a low gallery, the "Klostergang". This is treated as
a dark gallery with sculpture and is marked by portal struc-
tures at the three entrances. The walls are constructed of a
horizontal timbers or of vertical posts set side by side, on
in half timber work combining both systems. In Norway and the
western provinces the vertical method predominates, but in Ger-
many and eastern Europe the horizontal system. In the interior
of the towers remain visible or a horizontal ceiling is ex-

1150) is a basilica with horizontal ceiling. Of the cathedral at Drontheim, the Norwegian national sanctuary, only the transverse aisle and the sacristy still belong to the Romanesque period.

** The fortress-like enclosure of most monasteries has already been referred to in volume 1, page 183. Likewise simple village churches in the times frequently agitated by wars were often equipped for defense by a construction of the tower dominating the entrance, making it capable of defense. Even the cemetery surrounding the church is frequently included within this kind of fortification.*

A separate place is taken in Scandinavian art by the wooden churches, about 80 of which are still preserved in Norway and Sweden, the most important being at Urnaes (about 1090), at Borgund (first half of the 12 th century), Hitterdal (end of 12 th century), at Gol (now transferred to Oskarshall near Christiania) and at Wang (Vang), this transported in 1844 to Brückenberg in the Silesian Erz mountains. In them is preserved the primitive German and Slavic mode of construction developed into a style corresponding to the material and the climatic conditions. Its basal form appears to have been derived from the northern house and temple (volume 1, page 168), but it very early received influences from the basilican scheme and stone architecture which already appear in the forms of capitals in the oldest church at Urnaes. (Fig. 55). The ground plan (Fig. 56) consists of a nearly square principal room carried up high and enclosed by wooden trunks like masts, around which a portico extends on all four sides, that represents the plan of the side aisles. Opposite the main entrance lies the small square choir chapel, generally ending in an apse. Around this inner room runs a low gallery, the "svalegang". This is treated as a dwarf gallery with balustrade and is marked by portal structures at the three entrances. The walls are constructed of horizontal timbers or of vertical posts set side by side, on in half timber work combining both systems. In Norway and the western provinces the vertical method predominates, but in Sweden and eastern Europe the horizontal system. In the interior the rafters remain visible or a horizontal ceiling is arr-

arranged, or even a vault-like sheathing of stones as compared with the case section of the ship. The entire work in ship-building. The exterior is of very picturesque form. Against the middle houses structure, very high and covered by a gable roof with roof turret, first leaves the shed roof over the inner gallery (the side aisles) and the choir, then below the continuous roof of the nave, the entrance being interrupted by small porches, the whole unconsciously assisted to grow off and separate the mass of work. (Fig. 55). Great interest is attracted by ornaments incised in several parts of the structure, especially in the portal, jambs and lintels, in which the ancient German art and hand characteristics are most real order in an interesting line section of invention. (Fig. 57).

III. France.

Still more surely than in Germany, in the different provinces of France are expressed the national diversities of the people in Romanesque architecture. The southern half was once a Roman province. There was developed indeed a rich, varied and expressive art. But it was already based on the antique, from the East, and so much out little of its own, that we have no far distinguished as Romanesque in the narrower sense. The particularly beautiful even today was all over by German ideas only in small degree. The primary conditions of the development of art in northern France were different. There the Celts and Romans formed the predominant portion of the population, and thus also there the Romanesque art, determined by the German spirit, found a fertile soil. The entire course of the Romanesque art in France, as in Germany, is characterized by the method of construction of the ceiling, and particularly by the vaulted construction, that we have already described in a previous section. (See 13).

with horizontal ceilings:-- the ancient and venerable church of St. Martin en Tours (see volume I, pages 175, 181), a cross

arranged, or even a vault-like sheathing of boards is constructed, that recalls the ogee section of the ship. The entire woodwork frequently reminds one of the wooden construction common in ship-building. The exterior is of very picturesque form. Against the middle nucleus structure, very high and covered by a gable roof with roof turret, first leaves the shed roof over the inner gallery (the side aisles) and the choir, further below being the continuous roof of the svailegang, the shed roofs over the entrances being interrupted by small gables, the whole uncommonly adapted to throw off and separate the masses of snow. (Fig. 55). Great interest is afforded by ornaments incised in special parts of the structure, especially in the portal jambs and lintels, in which the ancient German animal and band interlacings perform real orgies in an inexhaustible wealth of invention. (Fig. 57).

III. France.

Still more sharply than in Germany, in the different provinces of France are expressed the national diversities of the people in Romanesque architecture. The southern half was once a Roman province. There was developed indeed a rich, varied and expressive art. But it was directly based on the antique, whose effects were frequently strengthened by direct currents from the East, and so made but little of its own, that we have so far designated as Romanesque in the narrower sense. The hereditary population even there was affected by German blood only in slight measure. The primary conditions of the development of art in northern France were different. There the Celts and Normans formed the predominant portion of the population, and thus also there the Romanesque art, permeated by the German spirit, found a fertile soil. The entire course of Romanesque art in France, as in Germany, is characterized by the method of construction of the ceiling, and particularly by the vaulted construction, that we have already described in connection with the general treatment of the ground plan and the interior. (Page 13).

In southern France are to be mentioned only a few basilicas with horizontal ceilings:-- the ancient and venerable church of S. Martin en Tours (see volume 1, pages 176, 181), a cross

classified with five aisles, restored in 1877, the apse church
of Cluny, dedicated 841 (page 28), two end-on-aisle creations,
but which have almost entirely disappeared, and S. Apollinaire
at Bezares, this influenced by the facade of the cathedral at
Paris. The impulse toward vaulted aisles set in with the tunnel vault-
ed half church of a single aisle (see page 18), among which
the cathedral of Notre Dame at Avignon (about the end of the
13th century) and the grand and evocative cathedral of Toulou-
se, commenced at the beginning of the 14th century, but not
completed in the pure style, represent the most important per-
son. Of the famous churches of Avignon (see page 18), the one
cross-aisled apse church of Fontevraud, where aisles and ap-
se referred to the second half of the 12th century, and the
cathedral of Angoulême are to be emphasized. (Fig. 28). The
influence of Byzantine work is there unmistakable. The ap-
se church of S. Front at Bordeaux (about 1182) entirely re-
fers over to the Byzantine model space with five domes al-
ready adopted by S. Marco in Venice.

More commonly than aisle aisled churches are found in south-
ern France the tunnel vaulted half churches. S. Front at E-
tampes (Fig. 29) is covered by three parallel semi-circular trans-
verse vaults in the side aisles, but in the middle aisle are two
crossed spaces and tunnel vaults. The churches at Clermont and
Bourges and at Fontevraud exhibit half tunnel vaults in the
side aisles; in the middle aisle the former still has a
round apse, but the latter already a pointed arch as the vault-
ing line. In the church of S. Savin the side aisles already
have cross vaults and likewise in Notre Dame la Grande at Bour-
ges (Fig. 30), famous for its peculiar facade. The tunnel
vaulted half churches with trifoliate arches a splendid develop-
ment in Auvergne in Notre Dame du Port at Clermont-Ferrand, a
cross-aisled and three aisled plan with columnar aisle and cir-
cle of chapels, cross vaults in the lower and half tunnel vault-
ing in the upper side aisles, and a massively treated dome cov-
er the crossing, also further in S. Paul at Lamoignon (Fig. 31),
colossal church of S. Martin (Martinière) at Toulouse (from the
13th century), yet built with five aisled nave and three
aisled transepts.

basilica with five aisles, restored in 997, the abbey church of Cluny, dedicated 981 (page 28), two epoch-making creations, but which have almost entirely disappeared, and S. Aphrodise at Beziers, this influenced by the facade of the cathedral at Pisa. The impulse toward vaulting set in with the tunnel vaulted hall church of a single aisle (see page 13), among which the cathedral of Notre Dame at Avignon (about the end of the 11 th century) and the grand and spacious cathedral of Toulouse, commenced at the beginning of the 13 th century, but not completed in the pure style, represent the most important works. Of the domed churches of Aquitania (see page 13), the cross-shaped abbey church of Fontevrault, single aisled and to be referred to the second half of the 12 th century, and the cathedral of Angouleme are to be emphasized. (Fig. 58). The influence of Byzantine works is there unmistakable. The mighty church of S. Front at Perigueux (after 1122) entirely passes over to the Byzantine normal scheme with five domes already adopted by S. Marco in Venice.

More commonly than single aisled churches are found in southern France the tunnel vaulted hall churches. S. Honorat at L'Erins (Fig. 59) is covered by three parallel semicircular tunnel vaults in the side aisles, but in the middle aisle are pointed arches and tunnel vaults. The churches at Grandson in Switzerland and at Fontfroide exhibit half tunnel vaults in the side aisles; in the middle aisle the former still has a round arch, but the latter already a pointed arch as the vaulting line. In the church of S. Savin the side aisles already have cross vaults and likewise in Notre Dame la Grande at Poitiers (Fig. 60), famous for its peculiar facade. The tunnel vaulted hall churches with galleries reach a splendid development in Auvergne in Notre Dame du Port at Clement-Ferrand, a cross-shaped and three aisled plan with columnar aisle and circle of chapels, cross vaults in the lower and half tunnel vaults in the upper side aisles, and a massively treated dome over the crossing, also further in S. Paul at Issoire (Fig. 61), as well as in higher degree after the same arrangement, in the colossal church of S. Sernin (Saturninus) at Toulouse (from the 12 th century), yet built with five aisled nave and three aisled transepts.

... having from the 13th century, the former with round arches, and the latter with pointed arches. The former is well known by the beautiful portal, richly adorned by sculptures, that we must to be the work of an early Renaissance. The church of St. Gilles (begun 1150) is worthy of comparison for the early occurrence of ribbed vaults above the choir, as well as by its beautiful portal, that like that of St. Trond is treated with Gothic columns entirely in the classical sense. In Brussels, the later group of churches built 1080-1090, was destroyed by the French revolution (1794), but was of standard importance. It was followed by the architects of the 12th century, in the cathedral of Liège and the abbey church of Verviers in northern Belgium (see 25), the latter vaults were also supported by cross vaults. Likewise the mother church of the Cistercians at Gembloux no longer exists. A correct representation of the construction (see 26) is given to us by the abbey church at Gembloux, erected about 1150, but whose tower is only enclosed choir was replaced about 1150 by a polygonal one, with aisle and circle of circles. With this choir plan, the three cross vaults were added to full maturity, and the carefully executed treatment of the choir in accordance with the system of ribs, which characterizes all the best of the latest transition style. Everywhere in northern France reveals the transition style. Half churches and aisles sided churches only occasionally occur, at least in the later designs. The rectangular ceiling was retained until in the last quarter of the 12th century. The great church of St. Pierre at Reims (1040-1045) with five sided nave, three sided transepts, choir aisle and circle of circles, still leaves the framework of the roof open to view. Romanesque ceilings also had the abbey church of Gembloux, now remains only as an excessive ruin, with three and columns alternating with the three piers, and also the great abbey churches of St. Gertrude and St. Gertrude at Caen, which however

The tunnel vaulted basilicas of Provence are best represented by S. Paul in Trois-Châteaux and S. Trophime in Arles, both dating from the 12th century, the former with round arched, and the latter with pointed arched tunnel vaults. S. Trophime in Arles is well known by the beautiful portal, richly adorned by sculptures, that we judge to be the work of an early Renaissance. The church of S. Gilles (begun 1116) is worthy of consideration for the early occurrence of ribbed vaults above the crypt, as well as by its beautiful portal, that like that of S. Trophime is treated with Corinthian columns entirely in the classical sense. In Burgundy, the later abbey church of Cluny, built 1089-1095, was destroyed by the French revolution (page 28), but was of standard importance. It was followed by the cathedrals of Autun, Vienne and Lyons. In the cathedral of Langres and the abbey church of Vézelay in northern Burgundy (page 29), the tunnel vaults were also supplanted by cross vaults. Likewise the mother church of the Cistercians at Cîteaux no longer exists. A correct representation of its construction (page 29) is given to us by the abbey church at Pontigny, erected about 1150, but whose rectangularly enclosed choir was replaced about 1180 by a polygonal one, with aisle and circle of chapels. With this choir plan, the ribbed cross vaults developed to full maturity, and the carefully graduated treatment of the piers in accordance with the system of ribs, this church bears all the marks of the latest transition style.

Everywhere in northern France prevails the basilican type. Hall churches and single aisled churches only occasionally occur, at least in the larger designs. The horizontal ceiling was retained until in the last quarter of the 12th century. The great church of S. Remy at Rheims (1005-1049) with five aisled nave, three aisled transepts, choir aisle and circle of chapels, still leaves the framework of the roof open to view. Horizontal ceilings also had the abbey church of Jumièges, now remaining only as an expressive ruin, with piers and columns alternating after the Saxon manner, and also the great abbey churches of S. Trinité and S. Étienne at Caen, which however received cross vaults later, about 1200.

About 1050 the great architectural activity of the Normans

rooms on the restricted system, the side aisles continued beside the choir square to the beginning of the semi-circular apse of the choir and then closed square. The side aisles have galleries, and above these extended other galleries, in which are the windows. From the choir project tall columns with capitals like Corinthian in earnest and plain forms. In the choir are especially favored small columns with bases of animals etc. Three towers, one over the crossing with a high pyramidal roof and two on the facade, animate the exterior of the structural group. Generally on the soil of northern France, Lombards are crossed with German influences. A rapid advance is made by vaulted construction. Already the church of S. Germain at Auxerre, erected between 1154 and 1167, was in a the middle aisle a completely developed system of ribbed cross vaults. In S. Etienne at Beauvais (about 1150) the middle aisle is covered by round arched ribbed cross vaults. The choir on at Auxerre (about 1150) already introduced the pointed form for the transverse arches. The abbey church of S. Germer near Beauvais (about 1150) exclusively employs the pointed arch in the vaults and the openings in the walls. They might already be ascribed to the succeeding art period; except that the buttress system (see page 75) is still undeveloped, since it is concealed beneath the roof. And in the latter monuments originating after 1150 was perfected that extraordinary transformation in construction and forms, with which the new system of the Gothic commenced.

IV. Italy.

The great movement in architectural history of the Renaissance period in the German lands of middle and northern Europe was not transplanted in its entire strength beyond the Alps. Italy was already so richly supplied with church buildings, that no such large field remained for the activity of medieval art. Likewise the northern races affected Italian art in very unequal measure according to the mixture of races, most successfully on the soil of lower Italy, already prepared by the Lombards, and in the former Norman kingdom of the Italian

commenced. Their normal churches were cross-shaped pier basilicas on the restricted system, the side aisles continued beside the choir square to the beginning of the semicircular apse of the choir and then closed square. The side aisles have galleries, and above these extended other galleries, in which are the windows. From the piers project half columns with capitals like corinthian in earnest and plain forms. In the cornices are especially favored small consoles with heads of animals etc. Three towers, one over the crossing with a high pyramidal roof and two on the facade, animate the exterior of the architectural group. Generally on the soil of northern France, Lombard are crossed with German influences. A rapid advance is made by vaulted construction. Already the church of S. George at Boscherville, erected between 1154 and 1157, has in the middle aisle a completely developed system of ribbed cross vaults. In S. Etienne at Beauvais (about 1125) the middle aisle is covered by round arched ribbed cross vaults. The church at Airaines (about 1130) already introduces the pointed form for the transverse arches. The abbey church of S. Germer near Beauvais (about 1145) exclusively employs the pointed arch in the vaults and the openings in the walls. They might already be assigned to the succeeding art period; except that the buttress system (see page 79) is still undeveloped, since it is concealed beneath the roof. But in the later monuments originating after 1150 was perfected that extraordinary transformation in construction and forms, with which the new system of the Gothic commences.

IV. Italy.

The great movement in architectural history of the Romanesque period in the German lands of middle and northern Europe was not transplanted in its entire strength beyond the Alps. Italy was already so richly supplied with church buildings, that no such large field remained for the activity of mediaeval art. Likewise the northern races affected Italian art in very unequal measure according to the mixture of races, most successfully on the soil of upper Italy, already prepared by the Lombards, and in the former Norman kingdom of the Italian South. Everywhere the German natural spirit, accustomed to

the simple and rational and inclined toward spiritual depth, brought new life into the petrified, formal antique with a bygone flavor and combined with early Christian art. Its joy in treatment and abundance of forms combined with the classicism of tendency peculiar to the Italian conception of art into an extremely fortunate harmony. Just as on the other hand the freedom and light spaciousness of Italian buildings reacted on the colored sternness of the massive and dark structures of the northland in the most favorable manner.

In most cases the churches followed the basilican scheme with or without galleries, yet always with a free treatment of the restricted system. The ancient T-form of ground plan (see volume I, page 176) was not always extended to the cross-form.

crossing rose a polygonal dome. The bell tower stood as early as the 11th century. The basilica without organic connection therewith. (Fig. 52). The Tuscan churches lacked the crypt. In Lombardy and lower Italy it was developed in the richest manner. As supports columns and piers continued in use, sometimes also in alternation. For vaulting, the cross vault was almost exclusively employed, with the exception of some churches of upper Italy influenced by France. Yet horizontal ceilings and the

vertical framework of the roof also remain in favor as everywhere. On the facades the horizontal subdivision expressed in a various manner. The preference for columnar construction led to an abundant use of tritiums. The richness of facades expressing in great width by the lack of towers was frequently animated and softened by facades of light and dark colored band courses and friezes. (Fig. 15).

Besides the basilican, the hall type counted considerably. The central plans are found in community churches chiefly in the Byzantine provinces of the South and in Venice (see volume I, page 194); but simple circular or polygonal buildings are more generally scattered over all Italy, occurring as basilicas and as tritiums. The forms of treatment characteristic of Romanesque art. Wall and arched tritiums were already represented in the art

the simple and natural and inclined toward spiritual depth, brought new life into the petrified, formal antique with a Byzantine flavor and combined with Early Christian art. Its joy in treatment and abundance of forms combined with the classical tendency peculiar to the Italian conception of art into an extremely fortunate harmony, just as on the other hand the freedom and light spaciousness of Italian buildings reacted on the connected strength of the massive and dark structures of the northland in the most favorable manner.

In most cases the churches followed the basilican scheme with or without galleries, yet always with a free treatment of the restricted system. The ancient T-form of ground plan (see volume 1, page 176) was not always extended to the cross-form. The transverse aisle frequently remained unmarked; over the crossing rose a polygonal dome. The bell tower stood as earlier beside the building without organic connection therewith. (Fig. 62). The Tuscan churches lacked the crypt. In Lombardy and lower Italy it was developed in the richest manner. As supports columns and piers continued in use, sometimes also in alternation. For vaulting, the cross vault was almost exclusively employed, with the exception of some churches of upper Italy influenced by France. Yet horizontal ceilings and the visible framework of the roof also remain in favor as previously. On the facades the horizontal subdivision expressed in a antique buildings reacts in the strongly emphasized main cornices. The preference for columnar construction led to an abundant use of triforiums. The surfaces of facades appearing in great width by the lack of towers was frequently animated picturesquely by facings of light and dark colored band courses and friezes. (Fig. 18).

Besides the basilican, the hall type occurred occasionally. The central plans are found in community churches chiefly in the Byzantine provinces of the South and in Venice (see volume 1, page 194); but simple circular or polygonal buildings are quite generally scattered over all Italy, occurring as baptisteries erected near the principal churches.

Lombardy preceded the North in time in the rise of certain forms of treatment characteristic of Romanesque art. Wall strips and arched friezes were already represented in the art of

...and also pointed on small columns with consoles among the Lombards (volume I, page 111). But in reference to the covering of the middle aisle with cross vaults, so important to the development of the Lombard style, the precedence is not important. It was first adopted for the church of S. Ambrogio in Milan (fig. 82), newly built in 1055-1071 over a three aisled ground plan without transverse aisle and with galleries over the side aisles, the middle aisle is strongly elevated out without windows in the clerestory, the groin lines of the main vaults entered by diagonal ribs in brickwork, which rise from round projections of the piers ended like angle columns. Before the western facade covering in loggia first a forecourt enclosed by arched porticoes on piers, whose existing structure dates from the beginning of the 12th century. (fig. 111). The transept and almost central apse figures in the ornamentation indicate a peculiarity of Lombard architecture. (Volume I, fig. 82). The system of S. Ambrogio was carried to a further solution in S. Michele in Pavia toward the end of the 11th century, when the middle aisle was extended so high above the side aisles, that windows could be placed in the clerestory walls. The most perfect condition of Lombard architecture and is the cathedral at Pavia (fig. 112), where the transverse aisle and choir are vaulted according to the crossing square, as in Pavia. Likewise the central of Pavia (fig. 113) follows this design, yet with restriction of the restricted system, and the arrangement of piers and vaults in the middle aisle, that also recurs in the church of S. Peter and Paul at Bologna, a structure with elevation of the apse. The cathedral of Modena subsequent to the school of Pavia (see page 51). To the last, the cathedral of Modena (fig. 83), a structure with elevation of the apse, in which round arches are used between the piers, called above to receive the ceiling; in the 12th century the piers were afterwards covered by cross vaults. Artistically more important is the middle church of S. Eusebio in Verona, a basilica with crypt and alteration of the apse, in which the system of open arches with horizontal

49 Ravenna (volume 1, page 157), and blind arcades on small columns with consoles among the Lombards (volume 1, page 171). But in reference to the covering of the middle aisle with cross vaults, so important to the development of the Romanesque style, the precedence is not important. It was first adopted for the church of S. Ambrogio in Milan, (Fig. 63), newly built in 1046-1071 over a three aisled ground plan without transverse aisle and with galleries over the side aisles, the middle aisle strongly elevated but without windows in the clearstory, the groin lines of the main vaults enlarged by diagonal ribs in brickwork, which rise from round projections of the piers shaped like angle columns. Before the western facade opening in loggias lies a forecourt enclosed by arched porticos on piers, whose existing structure dates from the beginning of the 12 th century. (After 1117). The fanciful and almost fearful animal figures in the ornamentation indicate a peculiarity of Lombard sculpture. (Volume 1, ~~Figure~~ 209). The system of S. Ambrogio was carried to a happier solution in S. Michele in Pavia toward the end of the 11 th century, when the middle aisle was extended so high above the side aisles, that windows could be inserted in the clearstory walls. The most perfect creation of Lombard-Romanesque art is the cathedral at Parma (dedicated 1106), where the transverse aisle and choir are arranged according to the crossing square, as in Germany. Likewise the cathedral of Trient (after 1212) follows this design, yet with rejection of the restricted system, and the arrangement of rectangular bays in the middle aisle, that also reappears in the church of Ss. Peter and Paul at Bologna, a structure with alternation of the supports. The cathedral of Piacenza substantially adheres to the school of Pisa (see page 51). To the basilicas with horizontal ceilings also originally belonged the cathedral of Modena (begun 1099; Fig. 62), a structure with alternating supports, in which open round arches are turned between the piers, walled above to receive the ceiling; in the 12 th century the bays thus formed were afterwards covered by cross vaults. Artistically more important is the noble church of S. Zeno in Verona, a basilica with crypt and alternation of the supports, in which the system of open arches with horizon-

horizontal ceiling yet remains in its original condition. The portal dating from 1139 (Fig. 65) has rich sculptured decorations and a door entirely covered by Romanesque reliefs in bronze. On S. Zeno, as well as on the cathedral of Modena, the vertical subdivision expressed by wall strips and half columns is striking, as well as the splendid wheel window in the gable of the middle aisle and over the main portal.

In the western provinces of upper Italy, at first belonging to France, are also commonly found (also occasionally in the remainder of upper Italy and especially in Milan) tunnel vaulted hall churches, similar to those of Provence. But in the east, in Venice, all Romanesque architecture stands under the overpowering influence of that magnificent triumph of Byzantine-mediaeval art celebrated in S. Marco. (See volume 1, page 194).

In Tuscany all Romanesque architecture developed under the strongest influence of the antique. The classical conceptions and treatment of the architectural masses here appear on the soil, once occupied by the ancient Etruscans, with a certainty and clarity, that must be striking in this portion of the country, in which so few remains exist from antiquity, and that can only be explained by the particular inclination of the people and their animated relations with Rome, where the antique=Early Christian spirit maintained itself alive until in the beginning of the second thousand years. The old basilican style with horizontal ceiling or visible framework of the roof passed into Romanesque art. But the exterior received a rich and splendid architectural treatment, in which the classical columnar and arcade construction came into its full rights, and the colored animation of the surfaces had wide scope. Nearest the antique stood the magnificent buildings of Florence:- S. Miniato (11 th century), the nobly located hill church at the southeast above the city, a three aisled nave (without transverse aisle) with alternating supports, open arches, visible framework of the roof and a facade, that is interesting as classical; the baptistery (12 th century) on the cathedral Place, an octagonal structure, containing an undivided interior vaulted by a dome and a facade with entirely antique treatment. The chief creations of Tuscan architecture stand in Pisa. They t

there combine in a grand architectural production, which produces in every one an unforgettable and even overpowering impression, who visits the quiet and broad Place at the northwest end of the city. On the middle stands the mighty cathedral, begun in 1063 by the architects Busketus and Rainaldus and completed in 1118. There clearly appears already in its external appearance the Latin cross, formed by the intersection of a five aisled nave with the three aisled strongly projecting transepts. The nave terminates at the east in a semicircular choir apse; the cross arms end in smaller apses. The middle aisle extends above the shed roofs at the sides; the crossing is crowned by an oval dome. Blind arcades and pilasters subdivide the external surfaces. But the western facade is entirely subdivided into arched galleries in several stories, in the manner characteristic of the Tuscan school, and even extending beneath the inclined edges of the roofs. (Fig. 66). On the interior 68 granite columns, partly with antique capitals, brought from afar, support the walls, on which rests the wooden ceiling of the middle aisle, while the side aisles are provided with Romanesque cross vaults. The internal walls are covered by white and dark green marbles. The entire interior makes a unified and solemn impression, airy and elegant, light in comparison to northern buildings. Near the main apse rises the campanile (Fig. 67), the famous leaning tower, erected about 1174 by Wilhelm of Innsbruck and the Pisan Bonannus, * that harmonizes finely with the cathedral structure by its columnar arcades surrounding it in six stories. Opposite the western facade of the cathedral stands the baptistery, executed in the same style (the superposed Gothic decorative gables are later additions), built 1153 by Diotisalvi as a great circular central building (100.1 ft. diameter), the interior with outer aisle in two stories, covered by a steep and almost conical dome. Yet other churches in Pisa exhibit the same treatment of the facade as the cathedral, also S. Michele in Lucca (1160-1239) and S. Giovanni-f-c in Pistoja. S. Andrea there (Fig. 18), a basilica from the 12th century with a narrow middle aisle adopted Florentine influences in addition to Pisan. Even as far as Dalmatia (cathedral in Zara, begun 1247), the Pisan school exerted its influence. A separate place is taken by

The cathedral at Avona (1870), built 1870-1875, stands on the site of the city on the Atlantic Sea. The cathedral is a fine example of the style of the time.

It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time.

* The cathedral is a fine example of the style of the time. It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time.

In the cathedral the surrounding urban provides the Romanesque style could be seen in the facade. The facade is a fine example of the style of the time. It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time.

There is a fine example of the style of the time. It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time. It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time.

But in one respect the middle ages facilitated the change to new life in the ornamental works in stone on stone, building, each enclosure, and particularly in the oldest corner. By the end of the 12th century, when activity was at its height, the cathedral was a fine example of the style of the time. It is a three-aisled nave, three-aisled transepts of the same length and with apses at each end. The crossing is crowned by a dome with 12 ribs. The Havana-Cathedral is indeed a fine example of the style of the time.

the cathedral at Ancona (Fig. 70), built 1128-1189. Caused by the location of the city on the Adriatic Sea, Byzantine influences affected it. The ground plan forms a Greek cross, consisting of a three aisled nave, three aisled transepts of the same length and with apses at their ends. The crossing is crowned by a dome with 12 sides. The Ravenna-Byzantine columns indeed date from an earlier building.

** The oblique position was produced by settlements (resulting from the yielding of the ground at one side), which occurred during the construction and could no longer be remedied.*

In Rome and the surrounding Umbrian province the Romanesque style could obtain no firm foothold. Architecture adhered to the Antique-Early-Christian basilican scheme with visible roof framework or horizontal ceiling and firmly to Roman architecture, busying itself less in the establishment of new churches, than in the rebuilding and maintenance of earlier works, and their rich architectural decoration. Besides S. Maria in Trastevere in Rome (about 1139), no remarkable rebuilding occurred. S. Lorenzo-f-l-M (volume 1, page 159) received the front church at the beginning of the 13th century; the structure of the 5th century remained as choir. Among the churches outside Rome are to be mentioned two beautiful works in Toscanella (near Viterbo), S. Pietro (Fig. 68), built 1039-1090, and S. Maria (1050-1206), both three aisled with noble treatment and with a rich facade.

But in one respect the middle ages fertilized the antique to new life in the ornamental works in stone on altars, pulpits, choir enclosures, and particularly in cloister courts. By the artist family of the Cosmati, whose activity falls in the period from 1090 to 1332, was developed an individual, finely conceived and very charming mode of ornamentation, that chiefly consisted in the decoration of architectural members taken from the antique with mosaics of bits of brightly colored marbles. What these head masters of mosaic decorative art have magically produced in noble form and splendid color in the Roman cloisters of the monastery near S. Paolo-f-l-M (1220-1241), erected by Petrus of Capua and Master Petrus, and S. Giovanni in Laterano, built in 1222-1230 by the two Vassalletus, father

and son (Figs. 21, 59), belongs to the most beautiful and most harmonious of all, that mediaeval art has brought forth anywhere.

Until the middle of the 11 th century, Italy was under Byzantine rule, and later till the middle of the 12 th century, under that of the Normans and Hohenstaufens. German traits are there combined with Byzantine, and also in part with Saracenic traditions. The churches are throughout basilicas with transverse aisle, that the apses adjoin directly, middle aisle with horizontal ceiling and cross vaults in the side aisles. The cathedral of Salerno (begun 1077) was later transformed into a pier design with tunnel vaults. Completely modernized are the neighboring cathedrals of Amalfi and Ravello. On them the stilted round arches and the intersecting blind arcades indicate the influence of Sicilian architecture. Stronger appears the German basal element in the east of the Norman kingdom of lower Italy, in the country of Apulia. The cathedrals of Bari (begun 1234) and of Troja (1093-1119) are columnar basilicas. At the cathedral of Trani each two columns are coupled. A peculiarity of the churches consisted in the largely planned and richly equipped crypt. In the cathedral of Trani the crypt extends beneath the entire upper church; in S. Maria at Foglia it is completely developed as a lower church. With few exceptions (for example the cathedral of Troja treated in an antique sense), the facades here by the subdivision with wall strips, arched friezes, triforiums and the like, frequently recall the buildings of upper Italy and the north; in several cases towers are even included in the structures in permanent connection with the facade. In the interior fully appears the love of splendor native to the South. Here chiefly the marble workers (marmorarii) called by Desiderius of Mt. Cassino, again revived the antique opus sectile (volume 1, page 148) and brought it to high perfection. Their style of decoration enjoyed such approbation, that it found the most extensive employment in lower Italy, in Sicily, and in Rome as far as Tuscany. *

* The technical methods of the marble workers differed from those of the Cosmati, in that they cut the different figures of the ornaments (bands, foliage, palm leaves etc.) out of thin marble slabs and cemented them in the corresponding recesses

of the architectural members to be decorated, while by the Cosmati the figures were composed of very small bits of marble arranged according to the general surface patterns.

In Sicily, that peculiar island so very richly equipped by nature, which was successively ruled by Greeks, Romans, Goths, Byzantines and Saracens, western art in the 12 th century and under the blessed rule of the Norman princes passed through a wonderful climax. In an extremely fortunate way were combined these traditions of the earlier forms of civilization in order to give to architecture their best, from the Greeks the spirit thinking for beauty, that would create the art work for itself, from the Romans the practical ground plan according to the model of the basilica with horizontal ceiling, from the Byzantines the advantages of the central plan, dome construction, and the costly facing with brightly colored marble slabs and splendid mosaics, from the Saracens the luxuriant and purely decorative use of arcade construction, the stalactite pendentive (see volume 1, page 209), and the splendor of color poured out over the entire interior. The Normans then completed the architectural creations so produced in their sense by the addition of towers in their facades and their monumental architectural treatment. The magnificent Martorana at Palermo (Fig. 71) has already been mentioned (see volume 1, page 194) as a purely Byzantine church; nearly allied to it is S. Giovanni d'Eremeti (founded 1132) as a church with five domes, yet with a substantial approximation to the western basilica, by the arrangement of the building as a nave with transverse aisle and three apses. The palatine chapel constructed in the royal palace at Palermo, famous for its strong interior (1129-1140), is a three aisled columnar basilica with a high dome over the crossing. The pure basilican type with horizontal ceiling is represented by the cathedral at Cefalu, dating from the first half of the 12 th century, whose western facade with vestibule is flanked by two massive and entirely Romanesque towers, by the cathedral of Palermo (1169-1185), but of which only the crypt, the internal columns, the choir apse and the detached double tower, now belong to the Romanesque structure, and by the cathedral of Monreale (1174-1189), a three aisled cross basilica with

57 western vestibule between two towers and a richly decorated portal, the best preserved and most important monument of the Sibilian style. The choir apse, as on the cathedral of Palermo, here exhibits the characteristic blind arcades with the arches intersecting each other. (Fig. 72). By the extremely rich mosaics of the interior is a grand show piece of genuine southern cheerfulness and fabulous splendor produced. Near the cathedral also lies that picturesque cloister court known to the world (1200-1221) with coupled columns and pointed arcades, not only the largest, but also by far the most important of all cloisters in Italy by the magnificence of the shafts of the columns inlaid with mosaics and the beauty of the sculptured decoration of their capitals.

V. Spain and Portugal.

After the founding of the Spanish Mark (province) by Charlemagne, Christian Visigothic princes penetrated beyond the Pyrenees, and after hard contests with the Moors (see volume 1, pages 203, 208) founded the Christian kingdoms of Leon, Castile, Navarre and Arragon, which comprised nearly all the northern half of the peninsula, and in part combined together. With the rise of these kingdoms, the blooming of chivalry, the complete expulsion of the Moors from the north and their retirement toward Granada (about 1250), Spain entered upon a national advance, which was likewise expressed in the art. Indeed this was not brought to a free and permanent development. As in the time before the middle ages, also in the Romanesque period was it dependent on foreign influences, particularly in great measure from the adjacent southern France, also partly on Lombard, German and Moorish art forms, whose effects were sometimes recognized in the general design and construction, sometimes in the architectural treatment and ornamentation, according to the relations of the master, of the architect, and of the executing artists.

Still entirely dependent on Moorish art stands the church of S. Maria la Blanca in Toledo. (Fig. 73). The interesting building is arranged in five aisles. The four arcades dividing the interior lengthwise rest on octagonal plastered brick piers with remarkable capitals ornamented by beaded bands, from which rise horseshoe arches.

the choir is a cross aisle and very low with
transverse aisle and choir. This contains either of three
(seldom five) arches on the side of the aisle or of one
arch with a choir aisle, formed by continuing the side aisle
around the middle choir and its extension by a radiating choir-
le of capitals. Basilicas differing from this general scheme
are only known by the general schemes by retaining the
by the insertion of a high choir for clerics in the middle aisle,
aisle, and a particularly rich treatment of the crossing tower.
(Basilica or cruciform). In regard to the structure, three types
are represented:-- the single half chapter, the half chapter
cross with galleries, and the vaulted basilica. The horizontal
at wooden ceiling is found in but a few instances. (St. William
and St. Lawrence in Geneva). Always the oldest Romanesque buildings
were covered by tunnel vaults in the middle and side
aisles, where also half tunnel vaults found employment in the
side aisles as in southern France. Later came the substitutive-
on by transverse arches, even the covering of the bays by cross
or vaults, first in the side aisles and then in the middle aisle,
aisle, the richer construction finally finding expression in the
in development with particular prominence of the rise of means
of attached piers, lozenge ornaments, corbels and the like.
To the tunnel vaulted half chapter with choir square and one
cross belongs St. Maria at Gernana, to those with galleries the
great trifoliate church of St. Sulpice (Paris) de Gournayville,
completed 1148, with three aisled nave and transept, the last
the projecting bay beyond the choir and side aisle with a
circle of capitals, and vaulted with a great porch west front
by grouped by statues and enlivened ornamental work. The aisle
highly arranged church of St. Leger at Lez (dedicated 1144)
already employed cross vaults for the side aisles. In the 12th
th and 13th centuries originated some cross vaulted basilicas
as important monuments with essentially subdivided piers and
revelous vaulted construction, among which as a chief work is
the choir (after 1180) with transverse
aisle (1174), trifoliate choir and very rich crossing tower.

The Romanesque churches as a rule are based on the form of the Latin cross as a three aisled and not very long nave with transverse aisle and choir. This consists either of three (seldom five) axes lying on the axes of the aisles or of one apse with a choir aisle, formed by continuing the side aisle around the middle choir and its extension by a radiating circle of chapels. Peculiarities differing from this general scheme are only shown by the Spanish churches by retaining the external arched portico along the sides (volume 1, page 172), by the insertion of a high choir for priests in the middle aisle, and a particularly rich treatment of the crossing tower. (Cimborio or crocero). In regard to the structure, three types are represented:-- the simple hall churches, the hall churches with galleries, and the vaulted basilicas. The horizontal wooden ceiling is found in but a few churches. (S. Millan and S. Lorenzo in Segovia). Already the oldest Romanesque buildings were covered by tunnel vaults in the middle and side aisles, where also half tunnel vaults found employment in the side aisles as in southern France. Later came the subdivision by transverse arches, then the covering of the bays by cross vaults, first in the side aisles and then in the middle aisles, the ribbed construction finally finding admission in bold development with particular prominence of the ribs by means of attached stars, lozenge ornaments, rosettes and the like. To the tunnel vaulted hall churches with choir square and one apse belongs S. Maria at Corunna, to those with galleries the great pilgrimage church of S. Jago (Santiago) de Compostella, completed 1188, with three aisled nave and transepts, the latter projecting far beyond the side aisles, choir aisle with a circle of chapels, and vestibule with a great porch most richly adorned by statues and sculptured ornamental work. The similarly arranged church of S. Isidoro at Leon (dedicated 1149) already employed cross vaults for the side aisles. In the 12th and 13th centuries originated some cross vaulted basilicas as important monuments with energetically subdivided piers and developed vaulted construction, among which as a chief work is the (old) cathedral of Salamanca (after 1120) with transverse aisle (Fig. 74), triapsal choir and very rich crossing tower,

and rises with extreme sides in two series, flanked by four
round towers. In a similar way the foundation consists of four
is crowned, in whose massive walls tower numerous Moorish for-
the found accordance. The beautifully located cross-shaped or-
area of St. Vincent at Avila with three towers and an arched por-
veloped western facade, with two low towers and an arched por-
ice between them, and a very richly sculptured double portal.
(Fig. 75). Expressed horizontal influences are shown by the pi-
er and vault construction of the vast cathedral of Tordesillas,
a cross-shaped basilica with five aisles; its first originated
in the 12th century and already characterized in the cross
ries and pointed arches the last stage of the development of

by the Gothic arches on account of their resemblance to
oil and rectangular side chapels, as for example Las Huelgas
near Burgos (1150-1158), and by the general design of the Got-
tician knights (Templars), among which is to be named in the
first rank La Vera Cruz near Segovia (1150), a polygonal struc-
ture of twelve sides with three apses and square bell tower.
(Fig. 76). To the finest show pieces of late Romanesque archi-
tectural also some cloisters, as for example that of St. Eustachio
in Barcelona, on which Moorish pointed arches and ornamental motifs
are used with Romanesque decorative forms into a very con-
sistent style of ornamentation. *

* Also see Fig. 58.
Portugal first obtained its colonial independence in the 15th
year 1482, but in the 16th century in entire dependence on Spain
and western France. As the most important monuments of
the 16th century from the Romanesque period are:-- the ancient cath-
edral of Coimbra, dating from the middle of the 12th century,
a tower square and funnel vaulted pier capital ending in four
as apses and with buttressed external walls extending into
the 16th century, as well as the tower and the tower of the
the tower, known as tower, built in 1160, in which tower
an octagonal two-story tower structure extends an aisle or

that rises with sixteen sides in two stories, flanked by four round turrets. In a similar way the foundation church of Toro is crowned, in whose massive domed tower numerous Moorish forms found acceptance. The beautifully located cross-shaped church of S. Vicente at Avila with three apses has a broadly developed western facade with two low towers and an arcade portico between them, and a very richly sculptured double portal. (Fig. 75). Expressed northern influences are shown by the pier and vault construction of the vast cathedral of Tarragona, a cross-shaped basilica with five apses; it first originated in the 13 th century and already characterized in the cross ribs and pointed arches the last stage of the development of the Spanish Romanesque style.

Separate places are also occupied on the Pyrenean peninsula by the Cistercian churches on account of their rectangular choir and rectangular side chapels, as for example Las Huelgas near Burgos (1180-1182), and by the central designs of the Christian knights (Templars), among which is to be named in the first rank La Vera Cruz near Segovia (1150), a polygonal structure of twelve sides with three apses and square bell tower. (Fig. 76). To the finest show pieces of late Romanesque art belong also some cloisters, as for example that of S. Pablo at Barcelona, on which Moorish foiled arches and ornamental motives are fused with Romanesque decorative forms into a very charming style of ornamentation. *

* Also see Fig. 86.

Portugal first obtained its political independence in the year 1139, but in its art continued in entire dependence on Spain and western France. As its most important monuments still dating from the Romanesque period are:-- the ancient cathedral of Coimbra, dating from the middle of the 12 th century, a three aisled and tunnel vaulted pier basilica ending in three apses and with battlemented external walls extending high above the roof, so that it makes the impression of a fortress. The Templars' church at Thomar, built in 1162, in which around an octagonal two story nucleus structure extends an aisle of equal height with a tunnel vault and enclosed in a polygon of sixteen sides, and the three aisled hall church of the Cister-

Cistercians at Alcobaca (1148-1222), that indeed shows the usual rectangular chapels on the east side of the transverse aisle, but terminates with a polygonal choir aisle lying behind these, that already exhibits the basal traits of Gothic in its pointed arches and vaulted construction.

VI. England.

In the year 1066 the Norman duke William the Conqueror with 60,000 soldiers from northern France undertook his great campaign into England, conquered the Anglo-Saxon king Harold near Hastings, took possession of his kingdom and divided the land among the Norman nobility, while the native population sank into the position of subjugated citizens and peasants. Thereby the architecture of the Normans found admission into England, but there experienced changes of many kinds under the reaction of the native style of architecture and with regard to conditions otherwise changed.

The previously common basilican scheme with alternating supports, galleries and strongly developed crossing tower (see volume 1, page 175) was also retained for the future. In order to provide space for the clergy, greatly increased by the flocking of monks from the continent, men gave the choir an unusual length (so that it appears like a continuation of the nave beyond the transverse aisle) with a rectangular ending as a rule, and without a group of chapels. (Fig. 77). The transverse aisle was therefore transferred to nearly the middle of the likewise very much elongated nave. It was arranged with strongly projecting transepts, generally enlarged toward the choir by a side aisle, in order to there receive chapels for establishing side altars as in the Cistercian chapels. Frequently these aisles are arranged in the transepts. Aside from the otherwise determining influence of the Cluniacs, the crypts were not omitted.

The structure (Figs. 77, 81) begins with unusually thick walls and heavy piers, subdivided after the Norman custom, or particularly for small churches, with strikingly stumpy round piers laid up in courses of small stones, whose form recalls old Saxon prototypes. The openings to the galleries approximated the character of triforiums by the insertion of a middle

columns with arches, and with a series of arches above them in the form of a cathedral. On the exterior the arches are usually decorated with a series of arches. (Fig. 70), so characteristic of English art. Heavy vaults with five and six arches, that are recessed to superficially enclose the arches. (Fig. 71). Slender half columns rise from the piers but remain without structural importance, since they support no stone vaults. Only the side aisles are covered by arches or sometimes by half round vaults, the galleries also with wooden construction. But although their form is horizontal vaulted construction, the English churches all have horizontal wooden ceilings (with the exception of the cathedral of Durham), which are often richly painted and gilded. The vaults are mostly seen in a full semicircle, more rarely with a slight depression at the top; the typical form is a dome. The architectural expression is dominated by the massive construction, that terminates without arches and in a horizontal series of half domes. If western towers were exceptionally added, they would then have the same fortress-like appearance, they project somewhat beyond the facade and enclose a still more between them, or they are placed beside the main aisle, where an entrance porch occupying the entire width. The porch is round enclosed by the doorway and windows, often treated with a series of arches and a series of half domes, situated with projecting wall series and arched galleries, slightly projecting and often with repeated horizontal bands and the crowning battlements. From the most important members of the English-Romanesque architectural works make a bold and good, though also a severe and dry impression. The masses of the buildings are not divided by the vertical elements, the aspect, than the cathedrals on the continent, whereby is somewhat relieved the heavy effect of the massive construction by the more without arches. Likewise the interior calls forth the same expression by the extraordinarily sunny effect by the series of arches and half domes, which are usually decorated with a series of arches. (Fig. 72, 73, 74) -- this is softened out little.

column with arches, and which extend above them in the great cathedrals. In the capitals almost exclusively prevails the cushion type in the change to the scalloped or folded capital (Fig. 79), so characteristic of English art. Heavy rounds with frets and zigzag bands, that are repeated to superfluity, enclose the arches. (Fig. 84). Slender half columns rise from the piers but remain without structural importance, since they support no stone vaults. Only the side aisles are covered by cross or sometimes by half tunnel vaults, the galleries also with wooden construction. But although their pier forms indicate vaulted construction, the English churches all have horizontal wooden ceilings (with the exception of the cathedral of Durham), which are often splendidly painted and gilded. The portals mostly open in a full semicircle, more rarely with a quite depressed pointed arch; the tympanum then disappears. The external impression is dominated by the massive crossing tower, that terminates without spire and in a horizontal series of battlements. If western towers were exceptionally erected, which then have the same fortress-like appearance, they project somewhat beyond the facade and enclose a small porch between them, or they are placed beside the side aisles, whereby either the porch entirely disappears or is transformed into an entrance portico occupying the entire width. The broad, round enclosures of the doorways and windows, often treated with frequently coupled slender half columns (Fig. 83), in combination with projecting wall strips and arched galleries, slightly projecting and often with repeated horizontal bands and the crowning battlements, form the most important members of the external architecture. In the general appearance (Fig. 80) the English-Romanesque architectural works make a bold and grand, though also a severe and dry impression. The masses of the building seem less enclosed by the strongly projecting transepts, than the cathedrals on the continent, whereby is somewhat obviated the heavy effect of the masses produced by the towers without spires. Likewise the interior calls forth the same expression by the extraordinarily stumpy piers; by the abundant use of ornaments--almost exclusively zigzag and fret bands, diamond and interwoven scrolls, stars, waves and the like (Figs. 78, 84)--this is softened but little.

23 The oldest structures, as for example the chapel of S. John in the Tower at London (Fig. 81), erected by the military architect of William the Conqueror, are very simply treated with stumpy round piers, plain walls and tunnel vaults. To the principal churches of the developed English-Norman style belong:- the cathedral of Winchester (1079-1093) with an extended crypt, later frequently restored and transformed; the cathedral at Canterbury, dating from the same period, of which indeed only the grand crypt (Fig. 82), certain parts of the choir and the towers of the Norman structure remain; the cathedral of Ely (1082-1174), which still affords a beautiful example of the rich Norman style of the 11th century in its three aisled transepts with galleries, triforiums and blind arcades, but otherwise and on the facades is evidently rebuilt; the cathedral of Gloucester, founded 1089, whose round piers in the middle aisle and especially in the crypt indeed assume colossal diameters; the cathedral at Norwich (after 1096), grandly planned with great dimensions and well preserved with the exception of the later middle aisle and of the tall Gothic window of the facade, (Fig. 83); the cathedral of Peterborough (Fig. 77) (1140-1193), an imposing work, that must purely exhibit the Norman style by its ancient wooden ceiling in the middle aisle and the heavy ribbed cross vaults in the side aisles, but on the facade by the great openings of the entrance porch, and the pointed arches already show the invasion of new conceptions.

64 Likewise in the abbey church at Waltham, a structure with alternating supports, round piers and richly treated details, is Norman art represented in its purity. These churches with round piers (at Waltham, Gloucester etc.) make a more satisfactory impression internally with their horizontal ceilings, than the cathedrals with the much subdivided piers (at Winchester, Ely, Norwich and Peterborough), since these (at least originally) lack the vaults prepared for by the plans of the piers. Only the imposing cathedral of Durham (1093-1128) proceeded to the completion of its system, when it also covered the middle aisle by ribbed cross vaults. (Fig. 78). The exterior (Fig. 80) allows the subdivision of its structural masses of the English cathedrals to plainly appear; the galilee chapel (Fig. 84),

is a show piece of English-Romanesque architecture strikingly characterizing the style.

As exceptions to the general scheme of the Norman churches are to be mentioned some central plans ascribed to the Templars, the tomb churches at Cambridge and Northampton, each with eight internal supports and an outer aisle, as well as the Temple church in London (S. Mary's church), erected 1185, a corcular structure with slender compound piers of four columns to support the ribs and pointed arches. Likewise into the English nave churches the pointed arch early penetrated, evidently by the mediation of the Cistercians, indeed at first only in the arcades, while men characteristically still firmly adhered to the wooden ceilings. But in the last quarter of the 12 th century the innovations came in so, that already at this time men entered into the Gothic period in England, thus considerably earlier than in Germany.

B. Romanesque Secular architecture.

Besides the grand creations of interiors in ecclesiastical art, the secular architecture of the Romanesque period occupies only a very modest portion, at least in the earlier period, but from the middle of the 12 th century onward, it acquired constantly increasing importance by the advance of city and castle architecture. The Romans already had founded numerous settlements on the soil of ancient Germany, particularly in the Rhine and Danube provinces, first as castra (regularly arranged and well fortified military camps; see volume G, page 128), and then from these settlements were derived populous cities (Strasburg, Mentz, Frankfort, Treves, Cologne, Xantes, Passau, Regensburg etc.). In them may yet sometimes be recognized certain straight streets intersecting each other at right angles in the midst of the otherwise so irregular network of the alleys of the oldest quarters, the former streets of the Roman camp. But most early mediaeval cities originated (aside from the direct foundations by the princes, as for example Goslar by Henry I, Bamberg by Henry II) from small settlements of an agricultural or industrial sort on sites favorable for them, especially on navigable rivers, at the intersections of important traffic routes etc. * By the resulting gr-

grouping of buildings without any definite system, there being
 a great deal of irregularity in the layout of streets, lanes and alleys,
 at about the middle of which were erected the houses, each
 on a plot, frequently in connection with a necessary gar-
 den. Besides these more important structures scarcely any but
 the residences of a ruler occupied a prominent position.

* Regular plans of residential cities with a regular main
 axis of streets, such as occur in modern times and in the
 northern provinces of China, are always to be referred to
 as "regular cities" (cheng). The first of these cities was
 founded after the year 1000, from which was developed a strong
 tendency to regularity.

The cities had regular fortifications at a very early time,
 mostly by a high wall, furnished with gates for shooting, gates
 for entry and with inner defensive barriers, and which was occa-
 sionally surrounded by a moat.

Only the gate covers over the walled entrance through the
 city walls were decorated with peculiar patterns and gen-
 erally with architectural decorations in the form of carvings
 in the wood. The exterior was uniformly white, the interior
 decorated with dark colors, which gave an unusually solid and
 safe appearance. While the interior side, where protection did
 not seem necessary, was formed by red brick walls, built timber or
 woven construction, sometimes being left entirely open. In

the 13th century the gates over the main entrances were de-
 corated into defensive edifices of two or three stories with a
 high tower rising above the roof or even with two floors for
 guns (one of the most beautiful examples of this is preserved
 by the Chinese at Gansu, near Lanzhou). The
 main entrance to the city was usually the entrance to the main con-
 sidered a separate system, sometimes defended by towers. A
 About the end of the 13th century, they commenced to excavate
 a ditch before the walls and to fill this with water, if possi-
 ble.

Within the walls and with the rapid growth of the city, a
 only a very small area could soon be assigned to the separate
 districts of the city.

grouping of buildings without any definite system, there originated an almost planless labyrinth of alleys, large and small, at about the middle of which were erected the bishop's cathedral and palace, frequently in connection with a monastery design. Besides these more important structures scarcely any but the residence of a ruler acquired a prominent position.

** Regular plans of mediaeval cities with a rectangular network of streets, such as occur in southern France and in the northeast provinces of Germany, are always to be referred to systematic foundations, in Germany chiefly to the Teutonic Order of knights, whose grand master had his chief seat in Marienberg after the year 1309, from whence was developed a strong activity in colonization.*

The cities then received fortifications at a very early time, mostly by a high wall furnished with slots for shooting, battlements and with inner defensive passages, and which was occasionally strengthened by small rectangular towers. (Fig. 85). Only the gate towers over the vaulted entrances through the city walls were constructed with particular strength and designed with architectural decorations in the forms characteristic of the country. (Fig. 86). The exterior was preferably constructed with bossy ashlar, which gave an unusually solid and safe appearance, while the internal side, where protection did not seem necessary, was formed by weaker walls, half timber or wooden construction, sometimes being left entirely open. In the 13th century the gates over the main entrances were developed into defensive buildings of two or three stories with a high tower rising above the roof or even with two flanking towers (one of the most beautiful examples of this is presented by the Romanesque gate at Comburg near Schwäbisch-Hall). Men soon decided for further securing the entrances to place opposite them a separate advanced structure defended by towers. About the end of the 13th century, they commenced to excavate a ditch before the walls and to fill this with water, if possible.

Within these walls and with the rapid growth of the city, only a very small area could soon be assigned to the separate dwellings of the citizens. They must be developed in height

rather than in width and to be quite sufficient for light and air. A generally followed scheme could not be established for the ground plan. The ground story was intended for the practice of the calling as merchant or mechanic; the upper stories served for residence. Almost always with reference thereto, the steep roof could not be allowed to slope toward the narrow street, but the house facade had the gable turned toward the street. The houses of the simple citizens mostly consisted of a low stone substructure only extending but little above the ground level, but otherwise of half timber work, posts and girts, whose panels were filled with bricks, or with interwoven wooden strips with a mixture of straw and clay and then plastered. About the middle of the 12 th century the half timber work in certain cases was changed into stone construction, indeed at first only in the ground story, which was sometimes covered by cross vaults on heavy stone piers, while the half timber work was still long retained for the upper stories. Later, in the 13 th century, also originated citizen's houses of stone in several stories, on which the endeavor for a monumental architectural appearance and the joy in ornamentation appeared. Their gables are always stepped. Such stone houses or their remains are found at Cologne (house on wool market and the Overstolz house at Cologne; Fig. 87), at Boppard, Aix-la-Chapelle, Treves, Metz, Gelnhausen, Saalfeld in Saxony (the beautiful purely Romanesque city pharmacy) and particularly in Regensburg, that city rich in Romanesque monuments. Also in France, in the south as well as in the north, certain citizen's houses in the Romanesque style still remain (for example in Cluny and Caussade), Likewise in England (at Lincoln) and in Belgium (Ghent).

Little attention is paid to capability of defense on these citizens' houses. The patricians and nobles taking part in the government of the city, who had their residences in the city, already took greater care for their personal safety in the usual internal contests and street fights. They arranged the first story, and often the second, for defense, even building dwellings in the form of strong towers with very thick walls and elevated entrances. Thus originated the mediaeval li-

living towers, that mostly concerned the council chamber in a
the lower story, in the second being the space for the kitchen
and servants, in the third for the family, over which was the
hall (kitchen, stairs) hall, and finally the chamber for the
lord's women and the place of defense (barracks) with a cor-
rise of battlements. This design of tower (Fig. 25) is a cor-
monly occurring form of the dwelling (German word in German,
here in English), but it in Germany has seldom. Great residen-
ces of rulers within the cities were not chiefly strongly for-
tified by moats, enclosing walls and towers, and they then for-
med the nucleus of the city fortifications.

However as stone construction attained to increased impor-
tance by the erection of necessary fortress-like dwellings for
the ruling nobles in the country, castle architecture, more
origin in its present sense falls in the change from the 10th
to the 11th century. Both by choice of site as well as by a
the entire plan and construction were utilized the possibilities
afforded by the location, steep slopes of hills and watercourses,
for effective defense as much as possible. (Fig. 26, 27, 28)
ready therefore men could always depend upon a certain geo-
metrical regularity of plan. The latter was limited in the o-
riental and singular form to the keep, a castle core and the
enclosing walls. The keep, an octagonal or circular, rarely
polygonal, usually square and high tower, was situated in
on the most protected side (sometimes 40-50 ft. above the ground)
and could only be reached by ladders or easily removable
wooden stairs; it served as refuge tower and defensive building,
and in the first period (in France and England even still later,
er, but in Germany always more rarely) for a dwelling, then
having the already described division into stories with a cor-
responding internal width (for example, at castle Albstadt
near Bielefeld, 32.8 x 32.4 ft.). About the end of the 11th cen-
tury the dwelling was almost always arranged in a separate por-
tion. The keep then came into consideration only as a place
for retreat, or the last place of resource, and therefore its
width could be considerably reduced.

The castle of Albstadt, near Bielefeld, was built in the 11th century and is a good example of a well built, residential it possible, also con-

living towers, that mostly contained the council chamber in the lower story, in the second being the space for the kitchen and servants, in the third for the family, over which was the men's (knights, state) hall, and finally the chamber for the tower watchmen and the place of defense (platform) with a series of battlements. This design of tower (Fig. 88) is a commonly occurring form of the dwelling (termed donjon in France, keep in England), but it in Germany but seldom. Great residences of rulers within the cities were yet chiefly strongly fortified by moats, enclosing walls and towers, and they then formed the nucleus of the city fortifications.

Romanesque stone construction attained to increased importance by the erection of necessary fortress-like dwellings for the ruling nobles in the country, castle architecture, whose origin in its present sense falls in the change from the 10 th to the 11 th century. Both by choice of site as well as by the entire plan and construction were utilized the advantages afforded by the location, steep slopes of hills and watercourses, for effective defense as much as possible. (Fig. 89). Already therefore men nearly always departed from a certain geometrical regularity of plan. The latter was limited in the oldest and simplest form to the keep, the castle court and the enclosing walls. The keep, an octagonal or circular, rarely polygonal, unusually strong and high tower, whose entrance lay on the most protected side (sometimes 49.2 ft. above the ground) and could only be reached by ladders or easily removable wooden stairs; it served as watch tower and defensive building, and in the first period (in France and England even still later, but in Germany always more rarely) for a dwelling, then having the already described division into stories with a corresponding internal width (for example, at castle Augenstein near Basle, 32.8×39.4 ft.). About the end of the 11 th century the dwelling was almost always arranged in a separate building. The keep then came into consideration only as a place for retreat, or the last place of recourse, and therefore its width could be considerably reduced.

The dwelling of the nobles, the palace, then became the proper monumental structure of the castle. It substantially consisted of a hall building, rectangular if possible, with open

front of glass and counted round arched windows, which somewhat
 were arranged along the entire inner side as an arcade, con-
 sidering the ground nearly the kitchen and offices, in the sec-
 ond and generally the great hall divided in two aisles by a row of

supporters (fig. 91, 92), being in being the chapel (in glass
 encased). In a third story existed, then in it were the small-
 er rooms living rooms (kitchens), in case they were not dis-
 ed in the second story or in an adjoining building.

Structural structures for the services, the garden and a
 the stables were established separately in the castle court or
 at suitable places within the enclosing wall. To the preser-
 vation and increase of the capacity of resistance to assaults a
 also was devoted a watchtower. Like the city walls, so the
 enclosing walls at the entrance to the castle and other danger-
 ous places were defended by round towers (fig. 93). Very com-
 monly the entire castle was enclosed by a second or third ear-
 then enclosure wall and one or more outlying forts, so that
 the main castle was surrounded by battle castles, that must be
 first taken by the besiegers before it could be reached.

Among the numerous castles -- there stand about 10,000 in
 German speaking countries, more than in the valleys of the
 Rhine, Moselle, Main and Neckar -- the most important places a-
 being taken by the seats of the reigning princes and the im-
 perial estates. We have only name of the former the Wartburg
 near Eisenach, founded in the year 1067 by the Thuringian land-
 grave Henry the Great, and the castle Bamberg at 87-
 mawick, built by the Guelion duke Henry the Lion in 1150-1170,
 and among the imperial places the ancient and venerable imper-
 ial palace at Goslar, already founded (1000-1005) by Henry II,
 enlarged in 1165 by Henry III (fig. 94), as well as the imper-

ial castles at Hagenau, erected and restored by Barbarossa
 (1155-1160) and his successors, Kaiserstuhl, Witten, Worms,
 Speyer and Bingen. The imperial palace at Bingen was
 (about 1150-1160) is especially important to us, since the or-
 iginal construction of its many parts has not been covered by
 uncertain restorations, and the former arrangement, which is
 also repeated in other castles of that time (especially at

Worms, Speyer, Bingen, etc.) is still clearly visible. To this an an-
 cient castle at Bingen, which was destroyed in 1689, is also

flight of steps and coupled round arched windows, which sometimes extended along the entire inner side as an arcade, containing in the ground story the kitchen and offices, in the second generally the great hall divided in two aisles by a row of supports (Figs. 91, 93), beside it being the chapel (in great castles). If a third story existed, then in it were the smaller warmed living rooms (kemenate), in case they were not placed in the second story or in an adjoining building.

Subordinate structures for the servants, the garrison and the stables were established separately in the castle court or at suitable places within the enclosing wall. To the preservation and increase of the capacity of resistance to attacks a also was devoted a watchful eye. Like the city walls, so the enclosing walls at the entrance to the castle and other dangerous places were defended by strong towers. (Fig. 90). Very commonly the entire castle was enclosed by a second or third external enclosing wall and one or more outlying forts, so that the main castle was surrounded by lattle castles, that must be first taken by the besiegers before it could be reached.

Among the numerous castles -- there stand about 10,000 in German speaking countries, more thickly in the valleys of the Rhine, Moselle, Nahe and Neckar-- the most important places being taken by the seats of the reigning princes and the imperial palaces. We here only name of the former the Wart burg near Eisenach, founded in the year 1067 by the Thuringian landgrave Ludwig the Springer, and the castle Dankwarderode at Brunswick, built by the Guelph duke Henry the Lion in 1166-1172, and among the imperial palaces the ancient and venerable imperial palace at Goslar, already founded (1002-1024) by Henry II, enlarged in 1065 by Henry III (Fig. 91), as well as the imperial castles at Hagenau, erected and restored by Barbarossa (1152-1190) and his successors, Kaiserslautern, Wimpfen, Nuremberg, Eger and Gelnhausen. The imperial palace at Gelnhausen (about 1180-1200) is especially important to us, since the original impression of its mighty ruins has not been obscured by uncertain restorations, and the former arrangement, which is also repeated in other castles of that time (especially at Mühlhausen in Hesse), is still plainly visible. It lies on an island formed by the Kinzig, a right branch of the Main, and

is accessible by a bridge, and leads through the tunnel-like
 from this into the castle court, having seen the form of an
 irregular tower. In this stands on the right the massive
 the enclosing wall, on the left living the palace (fig. 22). It
 was formerly three story and had in the ground story the kitchen-
 and council chamber, and living rooms for male servants. In
 the middle story, which was entered by a flight of steps and
 through a porch covered by a trefoil arch, lay the great two-
 story hall, measuring 32.4 x 27.7 ft., opening into the castle
 court by covered arches and containing the great fire-
 place and two other apartments. In the upper story were found
 the living rooms for the family and the female servants. Over
 the gateway hall lay the castle chapel, erected in the noble
 form of the style of the transition period. Of the schola-
 tical equipment of the palace of the great domestic castle,
 the library passed out still in truth the richest library.
 All of the best preserved German castle on German soil,
 a description is given. (fig. 23).

If we glance over the vast waste in mountains, that Roman-
 and secular architecture has left on German soil in the star-
 tly ruins of the castles of the tower houses and great man-
 that is also here manifested the unbridled creative power of
 Germany, that first in the German provinces, where it remained
 object, the course of artistic development formed a constantly
 ascending line, and after a few centuries reached an elevation
 at which it created the noblest art works, derived from its
 most original nature. These great artistic casts fall in the
 splendid cultural period of the German empire, in the days of
 the Renaissance, in which the German people rose to an unex-
 pected climax, which it never again attained. With the deca-
 cade of this people rising rose it descended from its height.
 under the eye of the French executioner, indicates the end of
 the German style and the invasion of the new art style of the
 later middle ages, born in France.

is accessible by a bridge, that leads through the tunnel-like and vaulted two-aisled entrance hall, which opens inward, and from this into the castle court, having about the form of an irregular hexagon. In this stands on the right the massive keep; opposite the entrance are housekeeping buildings against the enclosing wall, on the left lying the palace. (Fig. 92). It was formerly three story and had in the ground story the kitchen, council chamber, and living rooms for male servants. In the middle story, which was entered by a flight of steps and through a portal covered by a trefoil arch, lay the great two story hall, measuring 39.4×42.7 ft., opening into the castle court by coupled arched windows and containing the great fireplace and two other apartments. In the upper story were found the living rooms for the family and the female servants. Over the gateway hall lay the castle chapel, treated in the noble form of the style of the transition period. Of the splendid internal equipment of the palace of the great dynastic castle, the indeed restored but still in truth the ancient singers' hall of the best preserved Romanesque palace on German soil, a representation is given. (Fig. 93).

If we glance over the vast wealth in monuments, that Romanesque secular architecture has left on German soil in the stately ruins of the castles of the former princes and great men, then is also here manifested the unequalled creative power of Germany, that just in the German provinces, where it remained purest, its course of artistic development formed a constantly ascending line, and after a few centuries reached an elevation, at which it created the noblest art works, derived from its most original nature. These great artistic deeds fall in the splendid political period of the German empire, in the days of the Hohenstaufens, in which the German people rose to an unexpected climax, which it never again attained. With the decadence of this noble ruling race it descended from its height. That time, when the curly head of the last Hohenstaufen fell under the axe of the French executioner, indicates the end of the German style and the invasion of the new art style of the later middle ages, born in France.

There is no doubt that the middle of the 19th century Germany was
in a situation over the German question of the West. But
had been persistently harassed by the East and was in constant
with the East, constantly oppressed. After the Congress
concluded by the East representative of this selfishness was in
order to enter into the independence of his father beyond the
line, and ended with a Germanic federation, there pro-
ceeded over the German issue that "Germanic" and is called "Ger-
manic time", which most decisively shattered the political and so-
ciological life of Germany. With strictly conscious later man-
aged with the restoration of the Kingdom, the German empire,
by the division into its numerous separate states, could no
longer rise to its former greatness. The political order of
Germany of which Germany was transferred to the West, to trans-
fer, where the royal houses of the German, originally united to-
gether in a loose confederation, by a wise state policy gradually rose to
a position of supremacy, that Germany received a decisive
impulse in the history of the nations of the West.
The German now only assumed the role of leader in political
matters, but also with reference to intellectual life. After
they lifted the burden of the East in Germany accepted an un-
derstanding territorial, especially in the northern provin-
ces, that rose in the course of an elevation full of impor-
tance for the entire West. This gradually became the most im-
portant method for the learned and the sciences, and ac-
cording to the testimony of a contemporary writer, a "founda-
tion watered the entire East". There the second time con-
tacted with the crisis of the nation in the history of the
Germanic and the Germanic nations of the East. There was
certainly students attended the University of Berlin to complete
their education. The German advance was however not limited to the
and the advanced provinces; all these entered on a

GOTHIC ARCHITECTURE.

I. General and Historical Basis.

Until about the middle of the 13th century Germany exercised a supremacy over the Christian peoples of the West. But thenceforth the importance of the German imperial power, which had been perceptibly lessened by the hard and useless contests with the Papacy, constantly diminished. After the campaign, undertaken by the last representative of this splendid race in order to enter into the inheritance of his father beyond the Alps, had ended with such a lamentable termination, there broke over the German lands that "emperorless" and in truth "terrible time", which most deeply shattered the political and economical life of Germany. When orderly conditions later appeared with the restoration of the kingdom, the German empire, by the division into its numerous separate states, could no longer rise to its former greatness. The political centre of gravity of middle Europe was transferred to the West, to France, where the royal house of the Capets, originally sprung from modest conditions, by a wise state policy gradually rose to a position of supremacy, that frequently exercised a determining influence on the history of the nations of the West.

But France not only assumed the role of leader in political respects, but also with reference to intellectual life. Already after the beginning of the 13th century appeared an unusual intellectual fertility, especially in its northern provinces, that rose in the capital to an elevation full of importance for the entire West. Paris gradually became the most prominent metropolis for the learned and the artists, and according to the testimony of a contemporary writer, a "fountain, that watered the entire earth". There the secular rulers competed with the princes of the church in the fostering of the sciences and the arts, conscious of their aims. German theological students attended the university of Paris to complete their studies there, and likewise for the German stonecutters, Paris formed the most attractive gathering point, that afforded them the most favorable opportunity for their further training. The high advance was however not limited to the capital and the adjacent provinces; all France entered on a period of

bloom about 1200, and upon a general architectural activity, that may worthily stand beside those of the great periods in the history of art.

It was infallible, that just France, where the powerful movement produced in the West by the crusades found its inspired supporters, where the reform movement initiated by the Waldenses and Albigenses took its start, also was earliest affected by the revolutions, that occurred in the 12 th and 13 th centuries in the religious domain and in the entire mode of thought of the western peoples. In unexpected measure had the crusades enlarged the intellectual horizon, a forgetting of the national frontiers, produced a reciprocal approximation and thus aided a certain international feeling, that could not have occurred earlier. This was supported on the one hand by the international orders of monks, who had meanwhile attained to high power, and on the other hand by western knighthood, bound together in common views and endeavors. But all were united by the ecclesiastical bond cast by the church around all Christendom, and the supremacy of the papacy, that reached its highest power about the end of the 12 th century (under Innocent III, 1198-1216), the rule of the successors of Peter over the kings of this world.

Under these circumstances there naturally fell to the clergy, as representatives of the hierarchy, the most influential role in the society of the time. Beside it stood the (secular) knighthood entering on its greatest climax in the 13 th century, and the ecclesiastical knightly orders, who joined together according to monastic laws and rules of life as faithful Christian warriors in the combats with the infidels and for the protection of the church. But to these were added as other important bearers of civilization, the united citizens of the free cities, who attained to great power, sometimes entirely independent of the authority of the state, especially in Germany, the Netherlands and Italy, and in their prosperity blossomed a rich intellectual and artistic life. They soon appeared as owners beside the ecclesiastical and secular founders of churches and monasteries, since they required more spacious churches by the rapid increase of the inhabitants. The common

...of the citizens turned toward a commercial school ...
 that should form an indication of the importance, greatness and flourishing condition of their city. But thereby the ex-
 position of children, that in the fourteenth period was entirely an affair of the cloister brothers, passed into the hands of
 secular architects and workmen, in whose hands (1800), in great
 any at least about 1800. They joined in the building houses.
 in which were arranged the conditions of workers, and the sys-
 tems of his art were taught and learned as in a school. The
 the building houses chiefly comprised the masons and stonecar-
 vers gathered about a great cathedral edifice, but also those
 who formed extensive associations, within which occurred a
 regular transfer frequently if women from the associated for-
 eigns. * Written contracts regulated the collection of the
 owners and architects. The works of the journeymen were sub-
 mitted for definite marks, given them by the master, and
 one in the different dressed cloths, the stonecarver's marks,
 (1818, 24), which were also furnished by the masters as their
 signs and seals. In the cities the masons and stonecarvers as
 well as the other trades also gathered in guilds, so those
 previous training, carried out as in the building houses, as
 the last careful examination of the forms. To the master's side
 have occurred with it as an assistant, and the artists now a
 occurred in the longhand with their responsibility and
 and subject to numerous & important matters by multi-
 tudes of the artists and architects and their relations on their
 works. By the numerous ranks of artists preserved to us from
 the last century we can recognize the lively interest of the
 entire people in the art and their creations.
 * On April 12, 1800, there met at Regensburg a great general
 assembly of the building houses, at which the union of all ar-
 chitects of German speech in a great general association was
 decided upon, with subordinate divisions in the four great
 districts of the building houses at Regensburg, Cologne, Vienna,
 and Berlin, among which the fourth was divided as to the capital.
 Besides the second number of members and received the first
 list from Regensburg, even some foreign architects came in the

sense of the citizens tended toward a monumental expression of their prosperity by lofty Houses of God, visible from afar, that should form an indication of the importance, greatness and flourishing condition of their city. But thereby the execution of buildings, that in the Romanesque period was chiefly an affair of the cloister brothers, passed into the hands of secular architects and workmen, in France about 1250, in Germany at latest about 1300. They united in the building lodges, in which were arranged the conditions of working, and the mysteries of high art were taught and learned as in a school. The building lodges chiefly comprised the masons and stonecutters settled about a great cathedral building, but also frequently formed extensive associations, within which occurred a regular transfer frequently of workmen from far separated regions. * Written contracts regulated the obligations of the owners and architects. The works of the journeymen were accounted for by definite marks, given them by the master, and cut in the different dressed blocks, the stonecutter's marks, (Fig. 94), which were also introduced by the casters in their arms and seals. In the cities the masons and stonecutters as well as the other tradesmen also gathered in guilds, to whose thorough training, carried out as in the building lodges, is due the careful execution of art forms. To the master's pride here fostered was it to be attributed, that the artists now appeared in the foreground with their personality and their names, and ensured to themselves a permanent memorial by sculptures of the artist and architectural inscriptions on their works. By the numerous names of artists preserved to us from the late middle ages we recognize the lively interest of the entire people in the masters and their creations.

** On April 25, 1459, there met at Regensburg a great general assembly of the building lodges, at which the union of all stonecutters of German speech in a great general organization was decided upon, with subordinate divisions in the four great precincts of the building lodges at Strasburg, Cologne, Vienna, and Berne, among which Strasburg was decided on as the capital.*

Likewise the second period of mediæval art received its support from religion, even more strongly expressed than in the

Romanesque period; for in an infinitely higher degree the church, by Catholicism, the mind and the entire intellectual life predominated. The mysticism succeeded in its highest development in the Romanesque period, and which was perfected in meditation on the internal communion with God, and the giving up of individual consciousness, finding such an impressive reflection in the harmony of the Romanesque churches, was dissolved by the philosophy of the scholastics, whose endeavors were to prove the teachings of the church as divinely presented, above all individual criticism, and to fix them in a system of formulas. Likewise of this the architecture of the later middle ages gives a vivid reflection. The proper world of representation departed; the entire structural system was developed as derived in rigid sequence from the construction and a formalism carried to the highest clarity, which banned all diversities and excluded all personal caprice.

And yet within this system in architecture and still more in sculpture and painting is perceptible a slight beginning of that refreshing tendency, that was to come to full appearance with the entrance of the following period, the loving observation of nature. Yet also already about the middle of the 13th century very important learned men had made the claim to oppose to the monarchy of the scholastics a science based on experience, and to base this on a thorough observation of nature. But the deeply religious feeling, that dominated that time, was not influenced by them; men were still more believing than before. That unfortunate fervency of belief, which made the crusades possible, produced in the people the depth of emotion, recognizing in entire nature the power of the creator, a true Christian conception of life, as it was preached by the newly founded and influential Order of Franciscans; it was also manifested in church architecture in an even unequalled willingness to make sacrifices, in a boldness, which yielded to no hindrances; it also found for itself an individual artistic expression, in which the idea of a Christianity striving to free itself from the weight of earth and toward heaven indeed appears chiseled in the stone. Thus arose a new, purely theoretically conceived style of art, developed with the m

most acute consistency, that freed itself almost completely from the national character, and entirely proceeded from the Christian religion as the simple basal opinion of the mediaeval world. It therefore became, not the possession of certain professed persons, but the common property of all; therefore its popularity, its deep penetration into the simplest room of the outlying corner.

This art style was actually based on the Romanesque, whose final results in regard to construction it adopted and extended to all members. But while in the Romanesque style we perceive still the echos of the antique spirit, the architecture of the later middle ages is based on principles, that are diametrically opposed to the classical principles of art. The Italian writer on art, Vasari, a contemporary of Michelangelo, whose dominating conception of art entirely after the antique prevented all understanding of its forms, gave it the name of Gothic style, combining therewith the idea of recalling the barbarous and uncivilized Goths, an appellation retained until the present time, however little justification occurs for it.

II. The evolution of Gothic architecture.

The Gothic style sprouted from the soil of France, yet not as essentially a product of the French nation. It appeared first in northern France, just where Romanesque blood was most strongly intermingled with the German of the Celts, Franks and Normans, as a creation of the German intellect, though not exclusively so; it also found its highest development in German lands, while the purely Romanesque peoples inclined toward the antique in their entire art conceptions, and participated in its development in but a small degree.

The Gothic style was already partially prepared for in the Romanesque, the choir aisle, the richly subdivided pier, the system of ribs, the pointed arch in the vaults and the buttress. It matured into a definite system about 1150 in the middle river valley and north of the Seine, in the Isle de France and in Picardy. Here were combined the innovations, which had already resulted in detail for a long time in various countries, into a consistent, harmonious and definite whole. Here appeared earliest the mighty architectural spirit of a new pe-

...the scale of the device should be fixed from the outset of the work, and the elevated to greater heights. And therefore this

...the scale of the device should be fixed from the outset of the work, and the elevated to greater heights. And therefore this

The chief question of the architect must naturally be solved, first to make the vaults covering the interior as light as possible, then to remove the supporting walls and arches, and to make the dimensions as wide as possible, and to so extend them in their dimensions and forms they correspond exactly to the functions of the vault. In the erection of the vaults with this (case 1) the end result of the construction was assumed at the time. The construction between them should be limited as far as possible, and should be made rather a simple vault, the vault of the simple vault and composite vault of the vault. Therefore the vault is intended to increase the width by the expansion of hexastatic vaults in construction (Fig. 95), on which the vault is the form of stars of network, thereby obtaining the so-called star, net and fan vaults (Figs. 100, 101, 102). The continued increasing of the vaults is based on their thickness, when since the last even because less, they could be made of comparatively lighter sections.

In the construction along the adaptation of the vaults, or of the ribs containing the vaults, are the ribs treated. The ribs are round arches as a rule project upon the outer edge (Fig. 103), and extend beyond the location and cross section to the ribs, the latter cross to the ribs and form a grid system, the smaller to the diagonal ribs (Fig. 104). In the construction of the ribs, they become "ornamented", the latter again with

period, thoroughly permeated by a longing for heaven, which willed the height, slenderness and brightness required by the House of God, in which the dead structural masses were inspired, the souls of the devout should be freed from the weight of earth and be elevated to clearer heights. And therefore this also theoretically and structurally established the highest requirements. By the consideration of the method and manner in which these were solved is also disclosed the understanding of the entire nature of Gothic and a complete view of its course.

The chief attention of the architects must naturally be devoted, first to make the vaults covering the interior as light as possible, then to reduce the supporting walls and architectural members in dimensions as much as possible, and to so arrange that in their dimensions and forms they correspond exactly to the functions falling to them. By the erection of the cross vaults with ribs (page 12) the entire weight of the ceiling was assumed by the ribs. The compartments between them could be treated as thin panels, and indeed be made thinner and thus lighter, the smaller the separate panels and compartments of the vault. Therefore men soon proceeded to increase the ribs by the arrangement of hexapartite vaulted constructions (Fig. 95), or by placing the ribs in the form of stars or of network, whereby originated the so-called star, net and fan vaults. (Figs. 106, 189). The continued increasing of the ribs again reacted on their thickness, when since the load ever became less, they could be made of comparatively lighter sections.

In full dependence upon the subdivision of the vaults, or of the ribs combining at the imposts, are the piers treated. From the round nucleus as a rule project round three-quarter columns (rounds), that exactly correspond in location and cross section to the ribs, the larger ones to the cross and longitudinal arches, the smaller to the diagonal ribs. (Fig. 96). In English buildings the supports of the ribs appear as slender round columns, between base and capital free from the nucleus of the pier, thus becoming "disengaged", but later again united with it.

It is also extending from the air are indicated, the sub-

are separated by deep hollows or sharply conical the troughs
and thus appear as elongated bars, on which the water rises in

On the other hand as the air is raised only a very small

indicated by the opposite one. The comparison of the two
not elsewhere in the outer walls at the points on which the

this case. Since the counter stress is wanting there, a struc-
of some structure acting outwards makes itself felt, and a

galleries are lacking, this must be met by special constructi-
on. On the external walls of the side aisles and of the choir

ones, this was observed in the earliest manner by the consi-
deration of the structure, which received the thrust of the vault.

(Fig. 100).

More difficult is the problem for the clerestory walls of
the middle aisle rising above the side aisle. No buttresses

can be arranged for these, since to extend them down through
the roof of the side aisle to the internal floor, or rather

their construction from thence, would have ruined the entire
effect of the interior in the west transept. In the east transept

as to the external idea of receiving the pressure of the vault
as on the clerestory walls by a free side and of transmitting

it to the external buttresses of the side aisle. (Fig. 101). The
the position of these three buttresses (buttresses shown) the

location style reached the full maturity. Aside from the apse
connected at St. Germer (case 47) and St. Germer (1157-1160), when

the original buttresses is no longer recognizable with ex-
treme certainty on account of later changes, these are to be

found in their original condition on the cathedral of Amiens
(catalogued 1157) and of the apse church at Combarthe near Amiens

(Fig. 102). In the latter case the original structure, the
originally only executed in sections without ornamentation, the

construction appears in entire reality. The external appearance
of the cathedral was sacrificed in order to secure the most

advantageous placement of the interior.
The introduction of the buttress system commenced in the

If the ribs extending from the pier are increased, its subdivision proceeds equally; the rounds are likewise increased, are separated by deep hollows or entirely conceal the nucleus and thus appear as clustered piers, on which the vault ribs in a manner are joined together and rise from the base. (Fig. 152).

On the piers shaped as free supports rests only a vertical pressure, since the side thrust of each separate arch is equilibrated by the opposite one. The combinations of pressures act otherwise in the outer walls at the points on which the ribs meet. Since the counter stress is wanting there, a strong side pressure acting outwards makes itself felt, and when galleries are lacking, this must be met by special construction. On the external walls of the side aisles and of hall churches, this was obtained in the simplest manner by the construction of buttresses, which received the thrust of the vaults. (Fig. 100).

More difficult is the problem for the clearstory walls of the middle aisle rising above the side aisles. No buttresses can be arranged for these, since to extend them down through the roof of the side aisle to the internal floor, or rather their construction from thence, would have injured the entire effect of the interior in the worst manner. Therefore men came to the fruitful idea of receiving the pressure of the vaults on the clearstory walls by a free arch and of transmitting it to the extended buttress of the side aisle. (Fig. 97). With the adoption of these flying buttresses (buttress arches) the Gothic style reached its full maturity. Aside from the abbey churches at S. Germer (page 47) and S. Denis (1137-1144), where the original buttressing is no longer recognizable with entire certainty on account of later changes, these are to be found in their original condition on the cathedral of Noyon (completed 1167) and of the abbey church at Dommartin near Châlons (1153-1163). In this buttress construction, which was originally only executed in ashlar without ornamentation, the construction appears in entire nudity. The external appearance of the cathedrals was sacrificed in order to secure the most advantageous treatment of the interior.

The introduction of the buttress system coincided in the br-

processes agree with the Gothic structural principles regarding the reduction of the mass. Since the entire load of the vault was received by the buttresses and flying buttresses, the walls being between these merely had to support their own weight. The opening of the walls in favor of the structural columns, which was no longer caused by any structural reason, the cross section of the buttresses may then be reduced considerably in the same proportion as the pressure to be supported by them is lessened. As in turn, there is also made in the other structural parts from below upwards a continued change from a heavy to light.

The entire architecture obeyed the general desire for height; this is indicated by the pointed arch already prevailing for all vaults and clerestories, as well as the strong emphasizing of vertical lines produced by the buttresses and the entire subordination of horizontal lines. The structures therefore ever became more slender; all proportions were elongated, and all structural members were finally reduced to just the dimensions necessary for their purpose, until finally the entire building appeared as a skeleton-like structural framework, on which the masses of masonry were added. (Fig. 29: 1-5). In the construction and the resulting appearance of the entire effect of pointed arches, cross ribs and buttress construction thus was the nature of Gothic.

The matured state was already attained at the middle of the 12th century in the vicinity of Paris and in the French provinces like the latter parts. From there the new style extended under the active leadership of the influential Cistercian Order, particularly inclined toward the strict Gothic structural principles, over all France, through the former-German possessions as to the British Kingdom, over Germany, Italy and Spain. So it in various lands and places the existing architectural conditions reached, if the requirements of the Orders were effective in other ways, and the school traditions and traditions in the different national forms and even in the families of stonecutters led to various peculiarities, yet the Gothic style still retained its fundamental character.

broadest sense with the Gothic structural principle requiring the reduction of the masses. Since the entire load of the vaults was received by the buttresses and flying buttresses, the walls lying between these merely had to support their own weight. The opening of the walls in favor of the arrangement of colossal windows was no longer opposed by any statical reason. The cross sections of the buttresses may then be reduced upwards in the same proportion as the pressure to be supported by them is lessened. As in them, there is also made in the other structural parts from below upwards a continued change from heavy to light.

The entire architecture obeyed the general desire for height; this is indicated by the pointed arch already prevailing for all vaults and openings, as well as the strong emphasizing of vertical lines produced by the buttresses and the entire subordination of horizontal lines. The structure therefore ever became more slender; all proportions were elongated, and all architectural members were finally reduced to just the dimensions necessary for their purpose, until finally the entire building appeared as a skeleton-like structural framework, on which the masses diminish upwards. (Figs. 98; 158). In the combination and the resulting alternation of the entire effect of pointed arches, cross ribs and buttress construction thus lies the nature of Gothic.

79 This matured state was already attained at the middle of the 12th century in the vicinity of Paris and in the French provinces lying further north. From thence the new style extended under the active fostering of the influential Cistercian Order, particularly inclined toward the strict Gothic structural principles, over all France, through the Norman-English possessions to the British kingdom, over Germany, Italy and Spain. Even if in various lands and places the existing architectural traditions reacted, if the requirements of the Orders were effective in other ways, and the school training and traditions in the different building lodges and even in the families of stonecutters led to various peculiarities, yet the Gothic style still retained its international character.

In its evolution may be distinguished three periods in general, that characterize the development, climax and decadence

of the style, the early, high, and late Gothic. Yet a corresponding limitation in time can only be made with regard to the different countries. For at the end of the 12 th century, France had already passed through its early Gothic, when this first set in throughout the greater extent of England; but in Germany the earliest works of the Gothic style originated in the second quarter of the 13 th century, and it first generally appeared at about 1250. Therefore we shall fully describe the periods to be considered in regard to the various countries with the monuments concerned, and the characteristic style changes in the Chapters on the architectural treatment and the decorative equipment. (Pages 82 and 97).

A. Gothic Church Architecture.

The Ground Plan.

The Gothic transformed the ground plan in a far less degree than the superstructure. The mode of worship remained the same, and the time had set no different requirements in regard to the rooms, nor their grouping. Only for the choir was required, particularly in the great cathedrals, the principal churches in the residence city of the bishop, in view of the increase in the clergy and their participation in the ecclesiastical ceremonies, a greater extent and richer treatment, and with reference to the relics obtained by the crusades and the increasing veneration of saints, an increased number of chapels for the establishment of altars for saints and reliquaries. In order to make the sacred bones generally accessible for veneration, they were now generally placed in the altar table, enlarged for this purpose. The crypt was therefore regularly omitted.

But otherwise all types of plan had already been produced in the Romanesque period. The further development substantially concerned innovations, that resulted from the acquisitions of Gothic treatment of vaults. These first of all consisted in the complete freedom from the restricted Romanesque system by the introduction of continuous bays (of equal length), thus being an equal number of bays of vaults in the middle and side aisles (by placing the rectangular bays across the middle and lengthwise the side aisles; see page 4 and ground plan in Fig.

6), and still further in the polygonal choir endings produced by the ribbed vaults and the construction of buttresses. The nave system, introduced with the Early Christian basilica into Christian civilization and developed in the Romanesque period, always characterized the expressed ground form of the Gothic church, in which it was brought to the highest possible perfection everywhere. According to the kind of choir or nave plan, four main groups may be made in this system; the so-called Gothic cathedral ground plan with choir aisle and circle of chapels, the earlier basilican scheme with simpler form of choir, plans with two aisles, and those with a single aisle.

The most developed form is represented by the so-called Gothic cathedral ground plan with choir aisle and circle of chapels. (Fig. 99). It consists of a three, five or even seven aisled nave, transepts one or three aisled and projecting but little beyond the line of the nave, and a choir lying on the prolongation of the middle aisle and ending in a regular polygon, around which the inner or all side aisles were carried as choir aisles, and which ended externally with a radially arranged circle of chapels. (Fig. 153). The transverse aisle was frequently omitted. The chapels also sometimes extend along the nave walls to the western facade. On this two massive towers rise over the entrances to the side aisles. (Fig. 131). Between them lies the grandly designed main portal. This ground plan is chiefly found in cathedrals, but is occasionally met with in monastery and sometimes even in parish churches.

The churches firmly adhering to the older basilican scheme are somewhat inferior to the great cathedrals. They differ in ground plan from them chiefly only by the choir plan. For the nave is retained as in those. But the eastern part ends with a polygonal apse for each aisle, that no longer has the character of a niche, but appears a continuation of the interior of the aisle, with the same width and height. This adherence to the simpler plan is connected on the one hand with endeavors for simplification in the high Gothic, and still more prominent in the late Gothic, that were favored by the reform movements of the Franciscans and the Dominicans. These beheld pure Christianity in the return to poverty, and in the teaching of-

...the other part of the divine service.
...the other part of the divine service.
...the other part of the divine service.

lay element in the class of civil choruses. These are choir lo-
at in the choir; sometimes it was entirely omitted. Since a
single room proved best adapted for preaching, was decided to
prefer the hall church scheme (Fig. 100). Also moved the choir-
purses toward the interior and placed railings between them
in order to obtain more space for the auditors. With greater
requirements for space, men not seldom passed in late Gothic
to five aisled hall churches.

The successor of the preaching Orders mentioned so far exposed
the requirements for space also led to the erection of two-ais-
led churches. These consist either of a main and one or two
side aisles in the form of a basilica developed on one side,
or then assume the same common form of a hall church with a
single row of supports and a choir rising on the side, if not
as more rarely the case, doubled choir are arranged behind
each other, in order to not conceal the view of the altar by
the row of piers. In the simplest form of this type, so which
before numerous churches, especially those erected by the Fran-
ciscans and Dominicans in Germany and Austria, with but a sin-
gle support in the middle of a square principal room. Also a
exceptionally occurs an extension of this system to a four-ais-
led hall church with two symmetrical choirs. (Church at Schar-
sen in the Tyrol).

Plans with a single aisle form the rule in the smaller city
and country churches, but in France, where the hall church en-
joyed great favor already in the Romanesque period, as well as
in Spain, Italy and England, even came into use for great cathe-
dral buildings. In them the unified effect of the undivided
interior is shown.

Although on the great cathedrals with choir aisle and circle
it appears the eastern part appears to be one half a central
... these were more introduced very early in the German
(in the thirteenth century at Trier, until 1250-1260), the th-

office typified by Christ's Sermon on the Mount, thus in preaching, the chief part of the divine service. On the other hand the citizens, who were in direct sympathy with this Order enjoying great popularity, demanded greater attention to the lay element in the plans of city churches. Thus the choir lost in importance; sometimes it was entirely omitted. Since a single room proved best adapted for preaching, men decided to prefer the hall church scheme (Fig. 100), also moved the buttresses toward the interior and placed galleries between them in order to obtain more space for the auditors. With greater requirements for space, men not seldom passed in late Gothic to five aisled hall churches.

The endeavor of the preaching Orders mentioned to not exceed the requirements for space also led to the erection of two aisled churches. These consist either of a main and one low side aisle in the form of a basilica developed on but one side, or then assume the more common form of a hall church with a middle row of supports and a choir lying on its axis, if not as more rarely the case, doubled choirs are arranged beside each other, in order to not conceal the view of the altar by the row of piers. In the simplest form of this type, to which belong numerous churches, especially those erected by the Franciscans and Dominicans in Germany and Austria, with but a single support in the middle of a square principal room. Also exceptionally occurs an extension of this system to a four aisled hall church with two symmetrical choirs. (Church at Schwarz in the Tyrol).

Plans with a single aisle form the rule in the smaller city and country churches, but in France, where the hall church enjoyed great favor already in the Romanesque period, as well as in Spain, Italy and England, even came into use for great cathedral buildings. In them the unified effect of the undivided interior is grand.

Although on the great cathedrals with choir aisle and circle of chapels the eastern part appears to be one half a central plan, entirely central buildings are a rarity in the Gothic period. These were indeed introduced very early in the Gothic (in the Liebfrauen church at Treves, built 1227-1250), but th-

they could acquire no school-forming importance, at least in church architecture, and they but exceptionally found acceptance in certain chapels in Germany, Portugal, England and in English chapter houses. The ground plan then follows the Greek cross with a circle of chapels extending around it (Liebfrauen church at Treves), or the polygonal structure with a low outer aisle or star-shaped radiating chapels, or also the polygon with central pier and annular vaulting. These central buildings afforded excellent opportunities for the rich development of the star, net and fan vaults. (See page 86).

II. The building and its architectural treatment.

The Gothic middle ages created Houses of God of such vast extent and extreme height, that the owners and masters, who devised and commenced them with their direct successors could never entertain the hope of seeing them in their completion, that rather their execution required the greatest endeavors of several generations, and to many buildings fell the lot to remain unfinished. And this did not refer to such masses of buildings, as were erected in the Romanesque period, but always to a well conceived, carefully constructed organism, on which each separate architectural member was set in alternating relation to all the others, or was deduced from them with the most acute consistency. Therefore an accurate laying out of the plan was necessary, and this required a knowledge of architectural construction far excelling an acquaintance with the practical procedures in everyday use, and a deep insight into the statical conditions of buildings. It is just the high technical undertakings of the chief masters of Gothic cathedrals, that fill us with surprised amazement today, in our so advanced age in regard to expedients, in view of these colossal structures raised to such a dizzy height.

Thus the technical procedures commenced with the designing of the plan. Various examples of these have been preserved. (Of Cologne, Strasburg, Ulm, Vienne etc.). They exhibit by the numerous sketches of elevations on the plane of the ground plan such a dense complexity of lines, that only masters versed in the mode of representation could understand them. In scientific expedients, quadrature and triangulation, geometry and arithmetic, the golden section, and definite numerical propor.

transmission and construction of Gothic cathedrals and ecclesiastical
 structures to play the same part as the square in the Ro-
 manesque buildings. Statistal calculations in the sense used
 in modern technique were not made. Men depended upon definite
 structural principles, that is, a chief part of the tech-
 nical instruction in the building trades, and these were sur-
 vived from secret from non-mentors. They were transferred to
 oral traditions to the younger generation in the building ind-
 ustry and the families of the stonecutters, but later with the
 extension of written records were also finally fixed in book form, and
 these have been occasionally preserved to our time. From these
 manuscripts and the artistic representations medieval build-
 ing construction proceeded, so that the scaffolding of the str-
 uctures, the contents of the material, the use of the trac-
 ture for housing and setting stones, certain general and ev-
 idence remaining methods and customs were developed, that a
 are also in part in use today.

Since earlier construction permitted the highest structural ef-
 ficiency, men treated as materials the native cut stone in
 the different regions. The procuring of this often caused ex-
 tra difficulties and disproportionately high cost, while the
 nature of labor were very low. This explains the extreme effi-
 ciation of the material and the expense, that the generally
 carefully dressing of each separate stone required. Where men
 were restricted to bricks, as for example in the north German
 lowlands, they must limit themselves to great simplicity of
 the system and of the detail forms. Yet they understood how
 to produce splendid effects by the heavy use of the motives of
 the fine screen, favorable to masonry construction, by the
 general rounding of the enclosures of the windows, by arch-
 itectural, nested, lattice-like and frequently recurring forms
 from circular patterns, and by varied treatment of the wall-
 surfaces.

We have already assigned the structure in its main lines.
 While we now take it no more fully in regard to its details,
 we shall consider the architectural treatment compelled by it
 in a far greater degree than in any other form of art. With

proportions occupy an important place. Particularly in the dimensions and construction of Gothic churches the equilateral triangle appears to play the same part as the square in the Romanesque buildings. Statical calculations in the sense usual in modern technics were not made. Men depended upon definite experimental principles, that formed a chief part of the technical instruction in the building lodges, and these were strictly kept secret from non-members. They were transferred by oral traditions to the younger generation in the building lodges and the families of the stonecutters, but later with the extension of printing were also partly fixed in book form, and thus have been occasionally preserved to our time. From these manuscripts and the artistic representations mediaeval building construction proceeded, so that the scaffolding of the structures, the obtaining of the material, the use of the tread wheel for hoisting and setting stones, certain general and everywhere remaining methods and customs were developed, that are also in part in use today.

Since ashlar construction permitted the highest artistic treatment, men preferred as materials the native cut stone in the different regions. The procuring of this often caused great difficulties and disproportionately high cost, while the wages of labor were very low. This explains the extreme utilization of the material and the expense, that the generally careful dressing of each separate stone required. Where men were restricted to bricks, as for example in the north German lowlands, they must limit themselves to great simplicity of the system and of the detail forms. Yet they understood how to produce splendid effects by the happy use of the motives of the blind arcade, favorable to masonry construction, by the graceful mouldings of the enclosures of the windows, by brick friezes, netted, lattice-like and frequently recalling Norman-Arab ornamental patterns, and by varied treatment of the gables.

We have already described the structure in its main lines. While we now take it up more fully in regard to its details, we shall consider the architectural treatment compelled by it in a far greater degree than in any other form of art. With

the introduction of the continuous day (page 80) occurs a unit
 on of heavier and lighter lines in the restricted horizontal
 system, according to whether they stood at the angles of the
 in few exceptions) gave way to an entirely new form, the
 of all things. Their subdivision was limited in the early days
 to a circular nucleus with four or eight slender columns
 (pages 92, 101), but then with the richer treatment of the
 various kinds to the character of the shaft with each follows between
 the rounds, but their limitation in late Gothic by a round or
 occasional form of the shaft with very slender proportions, in
 order to construct the view of the structure as little as possi-
 ble. Sometimes capricious words are attempted, for example
 spirally rising thin rounds about the circular nucleus (fig.
 108). The pier stands on a polygonal or square base, revealed
 at the angles, that stands at the in hollow between the surro-
 und of the tower. A very low and plate-like base, still two-
 lifting the sequence of members in the Attic type, whose role-
 was also extended around the nucleus. Forms the transition to
 the shaft of the pier. (figs. 101, 102).
 The column extending on the pier as rounds have a simi-
 lar and often very thin shaft, as a rule square and not dis-
 tinguished, as well also as when enclosed as free supports. The
 capital mostly loses its original meaning as an architectural
 one; it rather appears as a strengthening and interrupt-
 ing of the shaft caused by decorative reasons, and therefore
 in the late Gothic with its aim of simplification, it is not
 rarely quite omitted. The basal form is that of the cell, and
 as long as the space has not assumed the polygonal form, pro-
 tected beyond that. At first the conventionalized but capital
 of the late Romanesque period remained in use. (figs. 103, 104).
 At the same time was adopted the new and specific Gothic form
 of capital and (in Germany about the middle of the 13th
 century onwards), it predominated generally. The bell form is
 covered with ornate sculpture, leaves, foliage from the native
 flora, particularly with oak, maple, holly, ivy, vine, rose,

the introduction of the continuous bay (page 80) occurs a uniform loading of the internal piers. The prevailing alternation of heavier and lighter piers in the restricted Romanesque system, according to whether they stood at the angles of the squares of the middle aisle or between them, consequently (with few exceptions) gave way to an entirely uniform treatment of all piers. Their subdivision was limited in the early period to a circular nucleus with four or eight slender columns (Figs., 96, 101), but then with the richer treatment of the vaults passes to the clustered pier with deep hollows between the rounds, but again simplified in late Gothic by a round or octagonal form of the shaft with very slender proportions, in order to obstruct the view of the preacher as little as possible. Sometimes capricious works are attempted, for example spirally rising thin rounds about the circular nucleus (Fig. 163). The pier stands on a polygonal or square base, beveled at the angles, that stops at top in hollows between the supports of the rounds. A very low and plate-like base, still recalling the sequence of members in the Attic type, whose mouldings also extend around the nucleus, forms the transition to the shaft of the pier. (Figs. 101, 152).

The columns extending on the pier as rounds here have a slender and often very thin shaft, as a rule smooth and not diminished, as well also as when employed as free supports. The capital mostly loses its original meaning as an architectural member receiving the load horizontally and transmitting it to the shaft; it rather appears as a strengthening and interrupting of the shaft caused by decorative reasons, and therefore in the late Gothic with its aim of simplification, it is not rarely quite omitted. Its basal form is that of the bell, and so long as the abacus had not assumed the polygonal form, projected beyond that. At first the conventionalized bud capital of the late Romanesque period remained in use. (Fig. 102). But at the same time was adopted the new and specific Gothic form of capital and (in Germany about from the middle of the 13th century onward), it predominated generally. The bell form is covered with quite naturally treated foliage from the native flora, particularly with oak, maple, holly, ivy, vine, rose,

stems and cover leaves, that partly grow out of the axils at an angle to be loosely attached. To produce a more taper-

the stem when viewed from below and a better harmony with the deep shadows of the architectural members, the leaves received pattern-like forms and an ever progressing concentration of fixation by swelling out the leaves with strong accents of the leaf ribs extending over the axils. In the best result may always be recognized the natural form. But in the late

botanic sciences that knowledge, deeply understood and witnessed, which occasionally occurs in combination with earlier in natural scattered or clustered blossoms and fruits, are otherwise all recognition of natural forms has vanished. (Fig. 103). By the arrangement together of the capitula belonging to the separate rounds on the clustered pier and the carrying of the monitions and ornamental work above the nucleus, late received a graceful capital course as its upper termination.

(Fig. 101).

The ribs rising from the piers retain in the early period the rounds in the hollowed angles, but replace them in time by a double by pointed rounds with clear-shaped sections. The ribs of the pointed round at first are approximately the form of a circle with an attached rib, and constantly extends in depth, until at last (in the second half of the 15th century) it contracts into a rectangular member with shallow hollows in each side. (Fig. 104). In the latest period to the ribs are frequently given the appearance of knobby branches or a other eccentric forms. The function of the circular ribs as the apex of the vault is effected by the boss (keystone), instead of which an open space being frequently occurs. The boss is often richly ornamented by foliate, stars with inscriptions and figure sculptures. (Fig. 105). The English late Gothic exhibits as a peculiarly long keystone capitals, and by supporting from ribs, which sometimes are run to two strong diagonal strokes across the vault. (Fig. 106).

in the keystone capitals. In the keystone capitals of northern France (Fig. 95), there is added to the two diagonal

thistle and clover leaves, that partly grow out of the astragal or appear to be loosely attached. To produce a more tasteful effect when viewed from below and a better harmony with the deep shadows of the architectural members, the foliage received pattern-like forms and an ever progressing conventionalization by swelling out the leaves with strong accenting of the leaf ribs extending over the swells. In the best period may always be recognized the natural forms. But in the late Gothic originates that knobby, deeply undercut and withered foliage, which occasionally occurs in combination with entirely natural scattered or clustered blossoms and fruits, but otherwise all recollection of natural forms has vanished. (Fig. 103). By the arrangement together of the capitals belonging to the separate rounds on the clustered pier and the carrying of the mouldings and ornamental work around the nucleus, this received a graceful capital course as its upper termination. (Fig. 101).

The ribs rising from the piers retain in the early period the rounds in the hollowed angles, but replace them in high Gothic by pointed rounds with pear-shaped sections. The profile of the pointed round at first has approximately the form of a circle with an attached fillet, but continually extends in depth, until at last (in the second half of the 15th century) it contracts into a rectangular member with shallow hollows in each side. (Fig. 104). In the latest period to the ribs is frequently given the appearance of knotty branches or other peculiar forms. The junction of the diagonal ribs at the apex of the vault is effected by the boss (keystone), instead of which an open stone ring frequently occurs. The boss is often richly ornamented by foliage, arms with inscriptions and figure sculptures. (Fig. 105). The English late Gothic exhibits as a peculiarity long keystone pendants, held by supporting iron rods, which sometimes are hung to two strong diagonal arches spanning the vault. (Fig. 140).

With the richer development of the system of ribs the construction of the vaults also changes. In the hexapartite cross vaults already occurring in certain Romanesque buildings of northern France (Fig. 95), there is added to the two diagonal

arches a third area was crosswise and passing through it

was corresponded to the spaces of the arches. But the
 Gothic period soon passed over to star vaults (Fig. 100 a).
 This original form of cross vault by the recent subdivision
 of the compartments by ribs, which represent the star form in
 the horizontal projection. Frequently instead of the cross v
 vault occurs a domical vault in remanent form and passing
 through the angles of the vault bay, upon whose surface may b
 then be erected the ribs from the centre on the ground plan.
 Then the subdivision of four bays into separate bays can
 still be retained. But the transverse arches are almost alwa
 is included in the figure and thus lose their original import
 ance, receiving the same size and mouldings as the other ribs.
 Later the division of the vault into bays was entirely changed;

the transverse arches disappear or seem unimportant portions
 of a network of ribs uniformly strewn over the entire ins
 rib. For these nettes vaults the surface of the vault forms
 a tunnel vault intersected by small conical vaults at the long
 or sides. The network of ribs is then first drawn on the arc
 and then in straight lines, afterwards being projected on the

surfaces of the tunnel vaults. But the late Gothic with the
 high development of tracery and the purpose of subdividing a
 row of bays also at last abandoned the straight ribs and rep
 laced them by curves. In this manner were obtained the ribbed
 vaults with doubly curved ribs, soon soon favored (Fig. 101,
 102). Very frequently in the late period resulted the connect
 ion of the ribs, so that they crossed at the intersections and
 were cut off on the other side. If the ribs rising from a tr
 ge support (pier or column) were very much increased in number,
 so as to be grouped in form of an opened fan, then originated
 the fan vault (Fig. 103). This found a preferred use in the
 Italian chapter houses and in the palaces of the Medici

order of knights (architects). In all these vaults the compo
 sition was essentially different from the late Gothic style.
 more similar between the ribs (see pages 10 and 101). The

arches a third arch set crosswise and passing through the apex, which was therefore particularly suitable for the Romanesque system, since the two smaller side arches lying in the arcade walls corresponded to the squares of the side aisles. But the Gothic period soon passed over to star vaults. (Fig. 106 a). This original form of cross vault by the frequent subdivision of the compartments by ribs, which represent the star form in the horizontal projection. Frequently instead of the cross vault occurs a domical vault in hemispherical form and passing through the angles of the vault bay, upon whose surface may then be projected the ribs from the figure on the ground plan. Then the subdivision of long interiors into separate bays can still be retained. But the transverse arches are almost always included in the figure and thus lose their original importance, receiving the same size and mouldings as the other ribs. Later the division of the vault into bays was entirely omitted; the transverse arches disappear or seem unimportant portions of a network of ribs uniformly stretched over the entire interior. For these netted vaults the surface of the vault forms a tunnel vault intersected by small pointed vaults at the longer sides. The network of ribs is then first drawn on the ground plan in straight lines, afterwards being projected on the surfaces of the tunnel vault. But the late Gothic with the high development of technics and the purpose of undertakings show pieces also at last abandoned the straight lines and replaced them by curves. In this manner were obtained the ribbed vaults with doubly curved ribs, soon such favorites. (Figs. 107, 161). Very frequently in the late period resulted the connection of the ribs, so that they crossed at the intersections and were cut off on the other side. If the ribs rising from a free support (pier or column) were very much increased in number, so as to be grouped in form of an opened fan, then originated the fan vault. (Fig. 139). This found a preferred use in the English chapter houses and in the buildings of the Teutonic Order of knights (Marienburg). In all these vaults the compartments were originally constructed with less and later with more swelling between the ribs (see pages 12 and Fig. 12). The netted vaults finally received an innovation in that the divi-

divisions of the network on the ground plan remained straight lines, but the compartments were replaced by high cloister vaults (volume 1, page 106) or pyramidal raised cells, indeed almost with the omission of the ribs. These cell vaults make a stalactite impression, especially for network with small meshes. (Volume 1, page 209). They occur almost entirely in the late Gothic of the Saxon provinces (among others in the Albrechtsburg in Meissen and in S. Peter in Brandenburg).

With the enrichment of the forms of vaults chiefly with the purpose of decorative effect, the thought returns to the consistent development of the construction. The execution of slender wall columns is no longer an indispensable requirement. They were shortened, thus beginning at a small distance below the imposts of the vaults on corbels, or were entirely omitted. The ribs then rest on corbels at the wall sides (Fig. 108). Finally they directly pass into the wall surfaces or the round or polygonal piers without any transition member. (Fig. 161).

Of the walls, in consequence of the great wall openings in hall churches, there only remained surface bands lying below the windows, with similar ones in the clearstory of the middle aisle of a basilican church. But also this part of the wall surfaces was then divided into the triforium (see page 20 and Fig. 109). The middle aisle therefore appears in four stories in the early period, so long as galleries were inserted; but later in the best period it became only three story with the omission of the galleries.

A particular development into perfected beauty was received by the windows. They chiefly lie in the middle of the wall with a strong splay downward, inside and outside. The jambs were subdivided in the richer treatment into alternating rounds or pointed rounds and hollows; they were always covered by a pointed arch in the early and best periods. In the clear surface the last remnant of the wall opened in the triforium disappeared in a stone tracery with the highest charm. The lower portion of the window forming a rectangle is subdivided by numerous mullions rising vertically from the sill, and in tympanum of the pointed arch this passes into the tracery (Fig. 110), the perforated stone slabs exclusively designed

with compasses and ruler, which artistically correct the mullions. The drawings are chiefly composed of pointed arches, circles and trefoils or quatrefoils arches, in which by tangential cusps projecting inward, are again fitted smaller and opposite trefoil or quatrefoil circles. (Fig. 111). According to the number of the latter are these figures termed trefoil, quatrefoil or polyfoil. In the second half of the 14th century the tracery was enriched by a peculiar recurved and elongated two-sided figure with two cusps, which recalls the fish's air bladder and has also received its name. (Fig. 112). The late Gothic makes the most extended use of this new motive. By inscribing the fish bladder within the circle arises the three, four and polypanel. (Fig. 113). If there are three or more mullions, these often alternate in size (old and young mullions), and likewise in the tracery are found corresponding main figures, within which are arranged the smaller ones. The mullions and the corresponding tracery ribs always have the same section, a projecting round in the early and the first part of the best periods, which as a slender column against the mullion is furnished with base and capital. (Fig. 111). Later the rectangular bar with hollows on each side became generally common. Extremely richly was developed the tracery of the wheel or rose windows. They are native in France and there belong to the most splendid parts of the cathedrals, on which they find a place on the most prominent part of the facade over the main portal. In Germany and England as a rule, a pointed window with many divisions is arranged instead of them. (Figs. 131, 98, 142). The famous rose window of the minster at Strasburg follows French influences; it has a diameter of 45.9 ft.

The main portal is treated with great magnificence. As in the Romanesque period, the jambs are strongly splayed and are similarly formed, for little columns or rounds (later pointed rounds) alternate with hollows. The entrance opening is often divided by a middle post but retains the rectangular form. The pointed tympanum thus produced is intended for the reception of representations in relief. Likewise in the richer development are statues inserted in the hollows of the jambs, each one of which is covered by a canopy, which at the same time

serves as a corbel for the figure above it. Thus they form a continuous series, that ends above at the vertex of the pointed arch. (Fig. 114). Directly above the outer angles of the pointed archivolt generally rises a steep ornamental gable adorned with tracery (tracery gable), by which the portal is particularly accented. In the richer treatment the tracery gables are also found over the windows. (Fig. 115). The great cathedrals generally have two other and similarly treated side portals on the axis of the transverse aisle.

90 In the external architecture the buttresses are first apparent. They seem like strong supporting walls projecting from the face at those points where the bays of the vaults meet and the ribs unite in the interior. Corresponding to the pressure diminishing upwards they are offsetted several times, furnished with shed-like covering slabs at the offsets and covered at top by a gablet. At first entirely constructed of ashlar without ornament (Fig. 100), in the best and late periods, especially in moderate forms, they were ornamentally treated with mouldings, blind tracery and niches for statues. (Fig. 116). When receiving flying buttresses and in order to increase the resistance to side thrust by loading at top, they mostly receive an extension like a pier, at first covered by gable slabs, but later terminating in a steep square pyramid with the form of a small tower spire. (Fig. 116). Thus is derived from structural ideas an architectural member, indeed occasionally appearing already in late Romanesque and Byzantine art, but new in this application and very characteristic of Gothic, the finial as a little ornamental tower, consisting of the slender rectangular "body", frequently opened to receive a statue and covered on all four sides, and the "finial" rising like an obelisk ("risen" from English to rise). These finials crown the 81 buttress and the junction of the flying buttress with the wall, flank tracery gables, and at last also find a purely ornamental use as an aspiring and resolving motive, particularly on the offsets of the buttresses and gables, sometimes even on the oblique slopes of the latter. The flying buttresses at first have the simple structural form made of ashlar, but are later splendidly decorated by mouldings and tracery. For five

aisled plans they are mostly supported or interrupted by intermediate piers, placed above the internal free supports of the side aisles.

Aside from the tracery gables soon (in France after the middle of the 13 th century) generally employed above the windows, the external wall surface lying between the buttresses received only on very rich buildings, and then almost entirely on the main facade, a further subdivision by triforiums and blind galleries with mouldings and tracery, that either appears overlaid or free before the surface of the wall. The latter mode of treatment has a prototype in the Romanesque art of Tuscany. (Page 51). Transformed into Gothic moulded and tracery decoration, it is particularly favored for the resolution of large surfaces of gables. A particularly rich ornamentation was received by some great church-buildings in France and England, (Notre Dame in Paris, cathedrals of Rheims, Amieys and Litchfield), when on them is inserted beneath the story with the rose window a continuous gallery containing statues, the gallery of kings. (Figs. 128, 144).

82 The subdivision by horizontal members is almost entirely limited to the low and but slightly projecting band above the plinth, the band below the windows, and the main cornice bordering the base of the roof. For the profiling of all cornices of bands is characteristic the beveled projection under half a right angle with a half round attached to the wall, a deeply cut hollow and the water drip, i.e., the upper surface steeply sloping outwards (Figs. 117, 118). In the best period the main cornice was preferably enriched by a foliage frieze. Above it and along the roof gutter (in France after the the second quarter of the 13 th century) extends the balustrade, frequently ornamented by the addition of figure sculptures. Fig. 118). The English buildings and those of the north German brick Gothic are crowned by a row of battlements instead. (See Fig. 147).

The roofs rise steeply and high above the main cornice or behind the balustrade or battlements. Over the middle aisle the form of the gable roof continues in use, which terminates over the choir in a hip roof corresponding to the polygon of the great plan. The shed roof no longer appeared suitable for

side aisles. It was replaced by transverse gable roofs erected over the separate bays, and in view of the better removal of rainwater and snow not infrequently passed into the flat terrace roof. (Fig. 166). Also on hall churches men generally sought to avoid the difficulties resulting from the covering of the entire bay by a single lofty gable roof and its heavy appearance by the arrangement of transverse gable roofs over the separate bays with hip roofs or gables along the sides. In north Germany and Holland there is found even lengthwise a gable roof over each separate aisle. The greatest attention was paid to the removal of rain water. It was collected in carefully cemented stone gutters, led down the tops of the flying buttresses over the side aisles and cast far from the walls by the gargoyles, shaped as distorted and fanciful human and animal figures. (Fig. 119).

The exteriors of Gothic churches on both sides and the choir only appear as an architectural covering and decorative treatment of a building skeleton, developed for pure construction, so that it rises in the facades and the architecture of the towers to an extremely monumental treatment, uniting the whole in a grand general representation. The number of towers is less than that of Romanesque church architecture. (The cathedral of Noyon, completed 1167, still has four towers at the angles of the western facade and between choir and transepts, and that of Laon of 1174-1226 exhibits -- perhaps with regard to their effect on the finely located and elevated square -- even seven towers in one group, which is a prototype for the German cathedral at Limburg-a-L. (Fig. 9). Most Gothic cathedrals are limited to two massive western towers or even a single tower erected over the main portal on the longitudinal axis, and a small wooden roof turret above the crossing.

On the main towers may generally be distinguished an elevation divided into three parts; the substructure extending in several stories above the roof or the ridge of the middle aisle, the bell story opening with great sound windows, and the spire rising above this in the form of a steep octagonal pyramid. They all have a square base, have massive and frequently stepped buttresses at the angles, which finally terminate in

canopy structures or finials, behind which the basal form of the upper part of the tower changes into an octagon. The spire was originally built with a solid wall (Fig. 120), then being constructed of slabs with slot windows or with openings in the form of open foils. (Page 88). Finally it was entirely resolved into open tracery. (Figs. 98, 158). At the edges of the tower pyramid adhere crockets or angle flowers, that seem to travel toward the vertex and thus complete the restless upward movement. The oblique edges of the gables, tracery gables, finials, and generally also the flying buttresses and buttresses are beset by these crockets. At first they have the form of opening buds with knobby enclosure (first on the cathedral in Laon), but then follow all style changes of Gothic foliage ornamentation. The topmost crowning ornament of the tracery gables, finials and towers is always formed by the cross-flower, that consists of four crockets grouped around the apex of the spire, frequently arranged in two or several rows above each other. (Figs. 121 a, 121 b, 122). Thus the exterior of the Gothic cathedral, like the interior, appears as a highly individual architectural creation, in which the resolution of the masses is carried to the extremest limit of possibility, and in which a powerfully expressed life pulsates in all the members.

In the stage attained by the climax of the Gothic style, this represented itself as an organism without gaps, as a system matured in the least details. Hence it was also capable of no further fruitful development. The forms gradually withered. Already in the second half of the 13 th century occurred (in France) the first indication of the downward development of the style in appearance by the strong emphasizing of unimportant things, an inclination toward the picturesque and endeavors for freedom from the law restricted to mathematical consistency.

With the 14 th century then appeared (in France) the expressed late Gothic. The choir lost its importance. It was preferred to omit the transverse aisle. In the structure the type of the hall church won preeminence. In stead of the clustered pier occurred piers with octagonal or round cross sections.

Where they were retained, the rounds pass directly into the ribs without capitals. The construction and subdivision are refined; they permit the recognition of an animated and really mechanical enjoyment in technical show pieces and novel decorative treatment. (Fig. 123). In the ceilings the net vault became the rule, and which soon passed into the double curved ribs. (Figs. 107, 161). Not rarely the network of ribs received a treatment like tracery of the windows, but it also sometimes degenerated entirely into knotty branched work. The resolution of the masses of the walls no longer had the force of the supreme grand principle; with the small openings in the walls appeared the inclination to form larger surfaces. The pointed arch no longer remains in unlimited control; it is re-curved in the ogee arch, so characteristic for the late Gothic, (A in Fig. 124), which completely dominates the forms of the tracery gable, of the crownings of canopies, and the like. B

47 Beside it the (circular) round arch again comes into use, the straight shouldered arch (B) on doorways, and on windows and doorways the depressed (elliptical) round arch (C), the low segmental arch (D), and the inverted (curtain) arches (F' and F''), chiefly native in Saxony. For the French late Gothic is the round-cornered (eared) arch (F' and F'') characteristic, and for the English a depressed form of the pointed arch, the Tudor arch. (E). In the tracery occurs the fish bladder in infinite variations. On the jambs of the portals beside the pointed rounds are again found small rounds that intersect at top like lattices. (Fig. 125). The entire mouldings also participate in these intersections. The rounds stand on small cylindrical bases, that are decorated by all sorts of tracery, network and interlacings, or by spirally twisted flutes. Frequently stand before the portals independent porches with the richest ornamental and sculptured decoration. (Fig. 150). In the external architecture the representation of the slender and elongated is finally carried too far and the structural principle is suppressed. The ornamental members, crockets, cross-flowers and the like become stiff and appear as if withered. The finials ever become thinner and at last recall metal works. Generally only a single tower rises above the port-

portal of the western facade to a previously unattained height. The entire technical and decorative treatment exhibits an ever progressive independence from the formerly strict laws of art, a constantly advancing freedom in the entire treatment of form. It clearly shows us, that the late Gothic is already breathed upon by the new spirit, foreign to the middle ages, that leads to humanism and the Renaissance.

91 III. The Decorative Equipment.

Besides the ornamental forms depending on a geometrical basis and directly resulting from the architectural treatment, the tracery, the pure ornament developed in plant and figure motives plays only a modest part. The wealth of Romanesque art in frieze decorations and conventionalized interlacings of plants with interwoven figures no longer continues in the Gothic. In it the common enjoyment of nature leads to an important innovation, particularly to the adoption of quite naturally treated foliage in the artistic expression of forms. Not only on capitals but also on cornices, the jambs, of portals, in vacant tympanums and in enclosed panels of surfaces, this foliage and plant ornament found admission. Among the motives chosen for imitation, those representing the shoots and buds of the plant kingdom enjoyed greater favor than their developed forms. Frequently the approximation to the natural impression was even enhanced by painting. The entire early period of Gothic is dominated by this purely naturally conceived plant ornament. In the best period and gradually introduced by the pattern-like repetition of the architectural forms once obtained and with the endeavor for monumental treatment, the already described (page 85) conventionalization, in the course of which the recollection of the model, once taken from nature directly, almost entirely disappears. (Fig. 126). Only the last phase of the late Gothic on the portals and the frames of panels again employs knobby branches, that appear like a direct imitation of knotty natural woods. The execution of the ornament, the acute estimate of the effect from below, the judging of the proportions of the dimensions according to the purpose, the location, and particularly the progressive enlargement of the details with their increasing height, deserves our

highest astonishment.

Besides the ornamental work, sculpture took an active part in the decoration of Gothic churches. By the carving of gargoyles and the figures on balustrades and keystones (bosses), it solved a chiefly ornamental problem. But it rose to a higher conception, and in the statues, with which the portals, the galleries of statues (kings) and the finials treated as shrines. The compression of statues into the narrow hollows led to too greatly elongated proportions of the bodies. From the endeavor to free itself from these restricting references to the architecture may be explained indeed the flexure sidewise peculiar to the Gothic figures. What is wanting to them in personal beauty in comparison to the antique works of sculpture or ⁹⁸is lost by the native costume, is frequently replaced by the expressive thought in the faces, that very fully manifests the feeling of the time as inclined toward sentimentality. In the interiors of churches the art of sculpture was chiefly abundantly occupied with the pulpits, rood screens, altars, and the tabernacles alone belonging to the Gothic period (Fig. 127), in their richer treatment. On them is strikingly shown, how the series of forms developed in architecture was directly transferred to the minor arts. The artistic certainty and the charming treatment of all details, that frequently distinguish their works in even the smallest village churches, manifest so justly the loving faith and self-denying piety of the high middle ages.

The Gothic did not favorably affect painting. Indeed it did not entirely reject colored ornament, since already it so expressively painted the columns, capitals, ribs and bosses with varied colors in order to enhance their effect. But for the larger comparisons, for fresco painting, there no longer remained any extended surfaces, at least in northern art. For the wall surfaces between the piers had been almost entirely resolved by the window openings and the trifuriums, and the vault compartments were mostly unsuited for painted representations on account of their height. But so much the more grandly was developed a special branch of this art, the glass painting. Already in the Romanesque period occurred windows with representations of figures; but the Gothic brought it to its climax.

to the design and set in (red). They were carefully limited
artificially to the proportion of mosaic patterns with each side
of different colors (other the series of color series; see
volume I, page 118). * Then was processed to produce 12 series
by the same method of treatment, when the lines and stripes
lying between the two columns were painted in stripes with

is shown windows with redness-contrast of stripes already ex-
posed about 50% (in the old traditional manner as shown in figure 1).
The color now varied a great deal from the square and of the 12 to
behave (windows in rows of horizontal of horizontal). The color
is consist of red, blue, green and dark yellow. In the 12 to
behave was added there the "silver yellow". At the
same time changes in the style made themselves apparent. Then
engraved in metal the bodies of figures; the figures re-appe-

come associated with various figure colors. Colored glass
there were color glass. They were painted in, recording the
"behave" glass by drawing off in some places and then col-
ored color colors, and found an extremely rich and silver-
ive in line and shading. In the background the early design
between the patterns proper were enclosed in a round frame
and was inserted in a window, sometimes placed with center
pattern. The best and late periods of design enclosed them
in a canopy architecture, that entirely covered the entire win-
dow. By the selection of the colors, the technical treatment
and the entire support of the representations, which had the
in materials, first from the stone and the legends of the early
era, then from history. The also finally included the legends
and families of the legends, the whole period created un-
duly interesting works in these glass windows, with high value
in art and also in the history of civilization.

It is known that in middle and southern France colored in the 5
th, 6 th and 7 th centuries, the windows were colored in
elemental colored windows of colored glass.

Its technics substantially consisted in the composition of figures with variously colored sheets of glass, cut out according to the drawing and set in leads. They were certainly limited originally to the production of mosaic patterns with cast glass of different colors (after the example of opus sectile; see volume 1, page 113). * Then men proceeded to produce figures by the same method of treatment, when the lines and shadings lying between the lead outlines were applied in strokes with a fusible brownish-black color. According to German documents glass windows with representations of figures already existed about 800 (in the old Benedictine church at Werden-o-Ruhr). The oldest now existing date from the second half of the 11 th century (windows in nave of cathedral of Augsburg). The colors consist of red, blue, green and dark yellow. In the 14 th century was added thereto the bright "silver yellow". At the same time changes in the style made themselves apparent. Men endeavored to model the bodies of figures; the figures received the Gothic flexure. They passed to important technical innovations at the beginning of the 15 th century. They had become acquainted with various fusible colors. Colorless glass sheets were coated these, they were burned in, producing the "uberfang" glass by grinding off in some places and then applying other colors, obtaining an extremely splendid and effective lighting and shading. In the Romanesque and early Gothic periods the paintings proper were enclosed in a round frame and thus inserted in a window, otherwise treated with carpet patterns. The best and late periods of Gothic enclosed them in a canopy architecture, that chiefly covered the entire window. By the splendor of the colors, the technical treatment and the entire purport of the representations, which took their materials, first from the Bible and the legends of the saints, then from history, but also finally included the persons and families of the founders, the Gothic period created unusually interesting works in these glass windows, with high value in art and also in the history of civilization.

** From the inspired writings of the early mediaeval authors we know, that in middle and southern France already in the 5 th, 6 th and 7 th centuries, the churches were adorned by variously colored windows of glass mosaics.*

The great Gothic cathedrals were frequently in architecture and decoration fail in the entire unity of the style. As a rule their erection required such long building periods, that the different phases of the style, in the course of its evolution from the early Gothic to the best period and the late Gothic, can be very clearly followed according to the progress of the works from east to west and from below upwards. Certain principal structures were already commenced in the Romanesque period; others received their completion only in the latest time. Their arrangement in the different periods therefore can only follow with corresponding reservations.

IV. Spread into the different countries and the Monuments.

I. France.

The three periods of the Gothic style are designated as primary, secondary and tertiary in France, the land of its origin. If we here adhere to our former appellations and follow the general course of its evolution on French soil, then is to be assigned to the early Gothic the second half of the 12 th century, and to the best period the 13 th century. Late Gothic falls in the 14 th and 15 th centuries and disappears only after the first third of the 16 th century. In general the Gothic style in France develops no substantially individual and national course; it appears more as an intellectual contemporary style, whose course we have already considered.

In the early Gothic (from 1150-1200) the earnest and heavy forms of Romanesque art still have great influence. The clear-story walls rest on round piers, from whose antique-like capitals rise the rounds. The ribs of the generally hexapartite cross vaults have the form of large rounds. (Fig. 106). In the windows usually remain round arches, and where the pointed arch appears in their place, the ornamental filling with mullions and tracery is omitted. In the ground plan the single or double choir aisle is the rule, either with a closely arranged series of chapels, or with entire or partial omission of these. The transepts frequently end in apses, so that the eastern end is treated in trefoil or triapsal plan. In the structure were still retained the galleries for structural reasons, but they disappeared with the gradual development of the buttress system.

The first great architectural work, that unites in itself a

all the basal traits of the Gothic style is the abbey church of S. Denis near Paris, whose choir and western facade, abbot Suger, the famous ecclesiastical prince, statesman and learned man, caused to be erected between 1137 and 1144. It has a double choir aisle and a circle of chapels with two facade towers, whose construction with buttresses, in great part still in Romanesque forms, permits the recognition of a new structural system. The model here given was directly followed by the cathedrals of Noyon, completed about 1167 (pages 77, 93), Leön (1174-1226) with three aisled nave and transepts and seven towers (page 93), and of Notre Dame at Paris (1163-1235). All still have in ground plan two squares of the side aisles to one bay of the middle aisle, and in the structure are galleries, triforiums and clearstories, so that they appear in four stories in the middle aisle. The western facade with two towers at Notre Dame (Fig. 128) has become typical for most French cathedrals. By bold horizontal belts and the insertion of the so-called gallery of the kings, containing the kings of Israel, beneath the story with the rose window and by a high triforium above this, the horizontal subdivision is strongly emphasized. It is retained as a peculiarity of French Gothic, although not corresponding to its principles. Perhaps in this is to be seen one of the reasons, why most French cathedrals have undeveloped towers, for the spire is wanting to them. On the cathedral of Chartres, begun in 1130, only the two towers, between which lies the triple portal leading to the middle aisle, belong to the early Gothic building. The cathedral at Sens, (begun 1152), in which clustered piers alternate with pairs of slender columns, omits the galleries, and likewise the cathedral of Soissons (1175-1212), in which the bays are continuous as an important innovation for the further development of the Gothic system.

The best period (1200-1300) brings during the reign of S. L. Louis (1226-1270) the classic age of French mediaeval art. All France was seized by a marvelous desire to build, that finds few parallels in the entire history of the world in the art, and which executed works on grand plans in the highest perfection. The prevailing system in the ground plan is composed of

two towers, a large arched nave and transept, a fine
tower choir with square apse and radiating chapels
radiating from the choir (as in the case of the cathedral at Cologne).
The choir, with continuous nave. The radiating chapels are continuous
into the choir. The choir wall below the treasury is reserved into
a triforium. In the treasury, particularly that of the nave
windows, the radiating tracery are characteristic, from which
the architectural style of the period has received the name of
radiating style (basilic style).

In northern France, where the great number of important works
have been at the head the cathedral of Amiens, founded 1220-
for the time of the year 1240, extending the two western towers
to complete in 1240, with a nave (1220-1240, 1240-1270) in
with famous towers, whose erection commenced in 1220. The cathe-
dral of Amiens, begun 1220 after the plan of Henry of France
class, the towers completed in the 13th century, the ground
group of the cathedral of St. Marks (1210-1240), the radiating
of the choir canopy of St. Marks (1210-1240). The most notable
and successful creation of the French Gothic however, is the cathe-
dral of Amiens (1220-1240) erected by Henry of France
at St. Marks in 1220-1240. It was designed for the presen-
tation of the relics brought from the Holy Land, as a church
model with three aisled lower and single aisled upper story.
In the tall tracery windows with double lancet windows
paintings express the tracery style for the first time as an

English Gothic

In Normandy the outlines of the 13th century still remain
very near the dry and severe traits of the early Gothic, and
the style of the Norman Gothic is characterized by the
simplicity of the Norman style. In the ground plan is similar to
that of the choir chapel lying on the main axis. The cathe-
dral is indeed locally clustered, but the central tower is
early Gothic and form. Tracery is wanting. The external arch-
itectural form is dominated by the strongly emphasized cross-
ed tower, that rises higher than the tower towers. As the
most important monuments are to be mentioned the cathedral
changed from earlier buildings, those of Henry (1220-1240), Ed-
ward I. (1270-1290), and the two other works of high Gothic, Henry
VIII. (1540-1550) and the two other works of high Gothic, Henry

two facade towers, a three aisled nave and transepts, a five aisled choir with single ambulatory and radially arranged polygonal chapels (as in the choir of the cathedral at Cologne, Fig. 153), with continuous bays. The galleries are constantly omitted. The upper wall below the clearstory is resolved into triforium. In the tracery, particularly that of the rose windows, the radiating figures are characteristic, from which the architectural style of the period has received the name of radiating style (style rayonnant).

In northern France among the great number of important works, there stand at the head the cathedral of Chartres, rebuilt after the fire of the year 1194, excepting the two western towers, completed in 1260, that at Rheims (begun 1212, Fig. 97) with famous facade, whose erecting commenced in 1251, the cathedral of Amiens, begun 1218 after the plan of Robert of Luzarches, the facades completed in the 15th century, the grand choir of the cathedral of Le Mans (1217-1254), the rebuilding of the abbey church of S. Denis (after 1231). The most mature and graceful creation of the French Gothic however, is the Sainte Chapelle at Paris (Fig. 129) erected by Pierre of Montereau for S. Louis in 1243-1248. It was designed for the preservation of the relics brought from the Holy Land, as a double chapel with three aisled lower and single aisled upper story. On its tall tracery windows with unusually magnificent glass paintings appears the tracery gable for the first time as an external termination.

In Normandy the buildings of the 13th century still generally bear the dry and severe traits of the early Gothic, that corresponded better to the Norman character than the refined art of the national style. In the ground plan is omitted the extension of the choir chapel lying on the main axis. The piers are indeed richly clustered. But the capitals retain the early Gothic bud form. Tracery is wanting. The external architectural form is dominated by the strongly emphasized crossing tower, that rises higher than the facade towers. As the most important monuments are to be mentioned the cathedrals changed from earlier buildings, those of Rouen (Fig. 130), Bayeux, Lisieux, and the two chief works of high Gothic Norman art; the three aisled cathedral of Sees and the five aisled

one of the most.

In southern France, where formerly the entire and also the
romantic style, continued in the same sense, and found such

ly. Besides remarking the religious and worldly circumstances of
the style, we remained behind the artistic development of the
period. First in the 12th century originated some changes
toward the end of the 12th century, the cathedral of Bourges, that exceptionally
had a cruciform plan of Uthmaniyah-Bey (about 1130), the choir
choir of the cathedral of Narbonne and of Toulouse on the
appeared the direct influence of the art of northern France,
not by the time but by style which still here also the changes
of the 12th century to the Gothic period, thus the transition
style of the cathedral of Bourges, the rich eastern building
of St. Sulpice in Paris and the cathedral of Amiens with a
single aisle, created on the exterior like a fortress.

During the building in France do not keep equal pace
with those of Italy and the style de France. The severity of
the style of the 12th century, considered 1140, still follows in
the ground plan the restricted system without choir and
side and choir of chapels, and it has yet found means with
and chapels, but allows the severity of which tended to be re-
organized in the well established system of choir and transept
etc. The church of Notre Dame in Caen and the cathedral of
Amiens and of Bourges are strikingly arranged and developed.
but the latter has already introduced richly treated chapels
on the exterior.

The late Gothic (1400-1500) in a decorative way finally re-
turned to the system transferred from the best period, which is
executed by an extreme sharpness and elegant finish char-
acteristic of the last period. The French style was gradually con-
fined in the side aisle by vertical channels. In elevation the
the windows of the choir were carried back and very high
position. The living buttresses received a new treatment.
The entire exterior and internal architecture tended to a sim-
ple, graceful and refined ornamentation. The 14th century in
the structure internal connections and the way with the exterior, a

one of Cautances.

In southern France, where formerly the antique and also the romanesque style, continued in the same sense, had found such a favorable soil, the Gothic could only strike root very slowly. Besides through the religious and warlike disturbances to the south also remained behind the artistic development of the north. First in the 13 th century originated some expressly Gothic churches, the cathedral of Bourges, that exceptionally had a crypt, that of Clermont-Ferrand (begun 1268), the grand choirs of the cathedrals of Narbonne and of Toulouse; on them appeared the direct influence of the art of northern France. Not by time but by style belong still here also the churches of the 14 th century to the Gothic period, thus the transverse aisle of the cathedral of Bordeaux, the rich eastern building of S. Nazaire in Carcassonne and the cathedral of Albi with a single aisle, treated on the exterior like a fortress.

Likewise the buildings in Burgundy do not keep equal pace with those of Picardy and the Isle de France. The stately church of Notre Dame at Dijon, completed 1240, still follows in its ground plan the restricted square system without choir aisle and circle of chapels, and it has yet round pillars with bud capitals, but allows the maturity of high Gothic to be recognized in the well calculated system of vaults and buttresses. The church of Notre Dame in Semur and the cathedrals of Auxerre and of Lausanne are similarly arranged and developed, but the latter has already introduced richly treated clustered piers.

124 The late Gothic (1300-1500) in a doctrinaire way firmly adhered to the system transmitted from the best period, which it executed by an extreme slenderness and elegant lightness carried to the last results. The ground plan was preferably continued in the side aisles by parallel chapels. In elevation to the windows of the clearstory were carried into the very high triforium. The flying buttresses received a rich treatment. The entire external and internal architecture tended to a showy, graceful and refined ornamentation. The 14 th century in general remained within relatively modest limits. In view of the strenuous internal commotions and the war with England, m

many important undertakings in the great style fell into the background. Men indeed everywhere continued the previously a animated architectural activity, but limited this chiefly to completions, rebuildings and additions. To these belong as a prominent work the famous and magnificent tower of S. Pierre in Caen(after 1308). Of the more important new structures begun in the 14th century, we have to mention the grand and nobly treated church of S. Ouen in Rouen (begun 1318). (Fig. 131). A more splendid revival was passed through by the mediaeval art of France in the 15th century. The architects of this time still always adhered to the standards of the early Gothic style in the plans and structures of churches. Therefore they also employed only with hesitation and in the last stage the net vault, renouncing the organic development of pier and vaulted construction. But otherwise they intellectually sported with the structural principles of Gothic (Fig. 123) and utilized all variations of late Gothic forms of arches, among which besides the oggee arch and the keel arch a very flat oval arch was preferred, that is often so depressed, that it ends in a horizontal line, particularly in secular architecture, thus appearing merely as a half rectangle with rounded corners. The portals and windows were covered by the most luxuriant and even fanciful ornamentation. (Fig. 132). In tracery (after the beginning of the 15th century) the flame-like and lengthwise elongated fish bladder and foil became characteristic. (Fig. 133). From these the entire French architecture of the 15th century has received the name of flamboyant style. Among the numerous completions of structures during this time the west facade of the cathedral of Tours shows the late French Gothic in its clearest and most graceful treatment. As completed and pure creations of the flamboyant style appear the most elegantly treated church of S. Maclou at Rouen, begun in 1437 by Pierre Robin, S. Nicolas du Port near Nancy, and the church of S. Wulfram at Abbeville (after 1488), whose facade shows a crisped ornamentation. Here likewise belongs also the church of S. Maurice in Lille, originating in even the extreme north of France, which however by its plan as a five aisled hall church with slender round columns occupies a separate place among the

French churches.

II. The Netherlands.

Since the conclusion of the Frankish agreement of division at Meerssen (in the year 870), the Netherlands formed a German province, incorporated in the duchy of Lorraine. Only the ancient counties of Artois and Flanders belonged to France. After the dissolution of the duchy of Lorraine arose numerous counties and duchies directly belonging to the empire, that after 1384 were combined under the dukes of Burgundy and their heirs of the house of Hapsburg into a mighty kingdom, enclosed between Germany and the North Sea, which by wise politics and art love of its princes should for a century take an important part among the peoples of northern Europe. According to its geographical location and the racial peculiarities of its people, which in the north (Holland) were exclusively of German origin, and in the southwest bordering on France (Belgium), but partly permeated by French blood, there are two architectural domains to be distinguished on the soil of the Netherlands. The southwest province was almost entirely under the influence of French-Burgundian cathedral architecture, even if there already German influences are not to be denied. But from the beginning the northeast followed more nearly the models afforded by German Gothic. In the 15th century and under the independence of the Netherlands, strongly flourishing low German cities became the chief supporters of a great artistic movement of a chiefly German spirit.

In Belgium the architectural works continued in the forms of the transition style until the middle of the 13th century. Then the choir aisle with the circle of chapels gradually found admission. But in the interior also further the stumpy round columns were yet preferred, from whose capitals rose the rounds to the vaults. In the external structure the masters only timidly and with hesitation approached the great wall openings and the buttress system of the contemporary high French Gothic, so that the system often appears as not consistently executed. Yet these works sometimes attain a high monumentality.

To the principal works belong:-- the cathedral of S. Gudule

at Brussels, begun about 1226, with a nave and series of chapels erected since 1350, whose facade received a tall window instead of a rose window, and two massive towers, completed in the 15th century. (Fig. 134). The Liebfrauen church in the city of Bruges, so rich in mediaeval buildings (choir built 1239-1297). The grand choir design of the cathedral of Tournai, built 1242-1338, begun in the Romanesque style as a cross-shaped pier basilica. The Brabant cathedrals at Mechlin (after 1341) and at Louvain (after 1373), and particularly the imposing cathedral of Antwerp, begun 1352 (Fig. 135), of which the noble choir was still erected in the 14th century, and the northern one of the two towers was erected only in the year 1518 (by Dominicus van Waghemakere), while the southern remained unfinished. (Fig. 136). All these architectural works are arranged according to the cathedral ground plan with choir aisle and circle of chapels.

Likewise in Holland most large churches have the rich form of choir. Yet the tendency to simplify the system here makes itself apparent everywhere, while the circle of chapels is often omitted, so that the choir aisle has a polygonal termination. The triforiums also disappear. Instead of them are arranged balustrades as recesses below the clearstory windows, which extend down to a belt above the arcade and are covered by blind tracery. The ornamental forms preserve great simplicity everywhere. Already the materials at command, bricks in combination with cut stone, limited their free development. Vaulted construction likewise did not reach a rich development; for on the insecure building soil of the overflowed swampy low lands, great care in construction was required in reference to the strong side thrusts of stone vaults. Therefore from the first, men frequently adhered to wooden construction, that was often built in the form of vaults in a very interesting way. Even if the height did not keep equal pace with the widening of the nave, still grand internal effects were produced. In the external appearance occurs an expressed preference for slender towers (Fig. 137), where foundations met with less difficulty, since there it was only necessary to take precautions for a load acting vertically.

108 Greatest appears the Dutch Gothic in the cathedral at Utrecht, (built 1254-1267), whose five aisled nave was torn down by a storm in 1674 and was never rebuilt. The Old church at Amsterdam originated about 1300, and the five aisled church of S. Peter at Leyden (1315) with slender round columns, low side aisles and wooden vaults display a tasteless Gothic of the 14th century. The masters of the Liebfrauen church at Dordrecht also decided for the choir aisle with the circle of chapels and also of the church of S. Stephan at Nymwegen, while the churches of Arnheim (after 1452) and of Delft, and likewise the Great church at Harlem (Fig. 138), with merely a spire over the intersection of nave and transepts instead of a tower, terminates with a polygonal choir aisle. The 15th century further produced two great churches with rich choir plan and stone vaults, the Liebfrauen church at Breda and the five aisled cathedral of S. Jan at Herzogenbusch, begun after 1419. In Friesland and Groningen are further noteworthy some country churches from the 13th and 14th centuries with domical cross vaults, which manifestly have relations with the buildings of western France. Otherwise most Dutch buildings are brick structures without stone architectural members, round columns, and vaults constructed of wood.

III. England.

109 The British island kingdom was the first country, that received from France the Gothic style of architecture in its earliest stage of development. After the burning of the cathedral of Canterbury in the year 1174, the French architect William of Sens was called to England with the commission to lead in the rebuilding of the choir plan. He saw in the cathedral of Sens (page 101) the most suitable model for this, and thus established the first Gothic building on English soil. But in this purely northern French conception, the transferred system prevailed but a very brief time. The English people willingly received the imparted impulses, but they wrought with the tenacious force peculiar to their national character and thus created a distinct national architectural style, that in accordance with its internal nature has maintained itself until our time.

In the ground plan (Fig. 139) then adhered also further to the former elongated plan of the Norman churches (page 60) with strongly projecting transepts and a rectangular choir without the circle of chapels. Frequently a second and sometimes a third transverse aisle in smaller dimensions is inserted, and the choir is extended by the end chapels lying on the main axis, the lady chapel (S. Mary). The structure omits the strong organic development and the alternation of the pier and vault construction. The attention to the construction is exceeded by that paid to the decoration. The English masters still adhered to the conception of the Romanesque massive construction, to which by the new means of decoration they sought to give the impression of elegant lightness. In the height of the aisles they remain far inferior to the proportions of the buildings on the continent, so that for the much greater length, the impression of the interiors of the Gothic cathedrals in England is changed from that of those on the continent. * By frequent repetition of the pointed arch in the windows and in the blind tracery on the walls, men sought to accent the upward movement and to animate the wall surfaces. Therefore they preferred to arrange the windows in groups of two or three. The triforium extending above the arcade was generally developed as an intermediate gallery story.

** The middle aisle of the cathedral of Amiens had one third its length as height, but that of the cathedral of Salisbury is only the sixth part.*

Vaulted construction attained a quite extraordinary development. England became the home of the most showy star, net and fan vaults. (Fig. 140). These are indeed conceived in a purely ornamental sense. The ribs are usually not developed as extensions from compound piers, but rest on corbels on short rounds set on the piers. Generally the stone vaults form no indispensable requirement for the English cathedrals. Besides them remain in use indeed in most cases the wooden ceilings common in Norman buildings, that also particularly corresponded to the island people, already well skilled in wooden construction by their shipbuilding. These were either horizontal beam ceilings, or they had the form of a gable roof, or even

that of a tunnel vault with Tudor arch section, richly decorated by painted and gilded carvings. (Fig. 141). Hence since in this manner a strong side thrust did not have to be reckoned with, as exerted by stone vaults, or that the erection of stone vaults was less effective on account of the smaller height, the design of the galleries and the greater thickness of the walls, the buttress system lost its importance. Flying buttresses were frequently omitted. consequently the external appearance also materially differed from that of the French cathedrals. The great elevated window is characteristic for the main facade. The vertical movement is strongly expressed by the tracery, but is always reduced by frequent horizontal members. At first, as in the Romanesque period, only a massive tower was built over the crossing. Facade towers first occur in the later period and mostly terminate with a platform. (Fig. 142). As an ending of the wall, the continuous series of battlements is peculiar to English Gothic.

We likewise have to distinguish here between three periods, the Early English until 1270, the Decorated style until 1370, and the Perpendicular style of the 15 th and 16 th centuries. The different epochs are chiefly characterized by the architectural treatment.

The Early English style (from 1175 -1270) exhibits a careful judgment of the proportions of the masses and excellent restraint in ornamental work. In the interior is striking the separation in the arcade piers, peculiar to English art, when the massive nucleus is surrounded by four detached slender round columns. The latter stand on bases with usually circular pinnacles, which also recall cast iron columns by the extremely slender shafts and the low bell shaped capitals with round abacuses. The bell capital is usually decorated by plant stems with conventionalized and loosely hanging leaves. Steep pointed arches, the so-called lancet arches, terminate the narrow windows. Only modest beginnings of tracery exist, and also of flying buttresses. To the Early English is also therefore lacking the light and airy structure of continental works; it appears more like a transition style with the Romanesque basis and the ornamental use of new forms. Its most important crea-

creations are the facades of the cathedral of Peterborough (page 63), the cathedral of Lincoln (Figs. 139, 143), whose choir was begun in 1190 and was originally round with three radial chapels, but was made rectangular in the 13th century, and whose nave (1209-1235) represents the mature Early English style. In this are found the first star vaults formed by fan-like radiation of the vault ribs. In the same time was built the cathedral of Wells with a wider facade, richly adorned by figures and flanked by two massive towers, a choir of the 15th century and a chapter house, well known for its magnificent fan vaults. As the most important and perfect work of the Early style is to be considered the cathedral of Salisbury. Its eastern portion was erected from 1220-1250, the nave soon afterwards, and in the 14th century the slender crossing tower, exceptionally crowned by a steep and massive pyramidal spire.

In the Decorated style (1270-1370) vividly appears the endeavor for greater development of the interior with improved construction, greater height and finer equipment. The ground plan retains its elongated form. To increase the perspective effect of the interior, the end wall of the choir is opened by a colossal window. In the tracery appear irregular foils, the fish bladder and flame-like forms (thus earlier than on the continent). England likewise preceded in the erection of net vaults. But even in this period stone vaults enjoyed no advanced esteem; even in great cathedrals they were very frequently imitated by wooden construction. If flying buttresses were constructed, they retained the simple wrought form. But the surfaces of the facade were richly subdivided by vertical mouldings. (Fig. 144).

In Westminster abbey church in London, begun in 1245 and completed about 1300, the new principles of the style appear. Yet many effects of French Gothic may be recognized in it, which manifest themselves particularly in the polygonal choir with a circle of chapels, unusual in England. The cathedral of York (nave completed 1335, choir begun 1361), a very monumentally executed structure in its external appearance, emphasized on the facades (Fig. 142) and in the interior by very decided verticalism, but the spacious middle aisle is only spanned by a wooden vault. It cannot pass as a model structure of the

rich style. The specific English conception is most purely represented in the grand cathedral at Lichfield (Figs 144, 145), substantially erected in the 14th century, on which we must mention the proud spires of the three towers as an exception to the rule, and which is distinguished by the richly subdivided clustered piers, arcade arches and ceiling vaults with ribs rising in fan-like form, and that at Hereford, where such a steep pointed arch is employed, that the spandrel almost appears as a straight line.

The Perpendicular style (1370-to about the middle of the 16th century) is so called on account of the vertical line dominating the entire architectural and decorative treatment, and it energetically subdivided the closely joined clustered piers by vaulting rounds, that in part organically rise from the floor to the vaults. The triforium was omitted, whereby the height of the side aisles was increased. Mullions and tracery with connecting horizontal bars cover the wall surfaces from the arcade to the vaults. In the windows the mullions mostly extend vertically to the soffit of the arch. The pointed arch loses its structural importance; it is depressed to the keel arch or recurved to an ogee arch. From 1450 the very low Tudor arch is at home in England, and this is again often enclosed by mouldings forming a right angle (label). (G in Fig. 124 and the portal arch in Fig. 147).

Hitherto still occurred in especially prominent buildings stone vaults in construction with an ever lower vaulting line, approximating the keel or Tudor arch, and fan-like ribs with overlaid tracery. (Fig. 148). How very greatly the structural idea was finally neglected in these appears in the fan vaults occurring in certain buildings with funnel-shaped suspended keystones. (Fig. 140). These are supported by iron rods, anchored into two free arches turned above each bay of the vault.

But about the middle of the 15th century appeared a strong reaction in favor of wooden ceilings, which were developed in the most splendid manner, both as horizontal beam ceilings as well as in visible roof framework. (Fig. 141). The blind tracery richly extending over facades also gives to the external architectural appearance of the structures in the Perpendicular

Perpendicular style their peculiar impression, quite particularly agreeing with the English national character.

115 Already at the end of the 14th century occurred the changes in the style at the rebuilding of the nave of the cathedral of Canterbury (1378-1411), and likewise on that of the cathedral of Winchester (after 1394; Fig. 146), whose interior under the influence of the tendencies of the Perpendicular style exhibits unusually slender proportions for English churches. By its rich choir stalls the cathedral at Chester is famous (1485-1490), whose beautiful southern sideportal is reproduced in Fig. 147. The richest development of fan vaults constructed in stone is attained by the Perpendicular style in the chapel of S. George of the castle at Windsor, erected 1460-1483 (Fig. 140), in which the mouldings extend in bands like joiner's work over the walls, and in a still higher degree in the stately and even capricious chapel of King's College in Cambridge (completed 1530; Fig. 148), and that of Henry VII in Westminster abbey in London. Of the more important buildings with rich wooden ceilings are yet to be mentioned the churches of S. Mary at Cambridge and at Bristol, and S. David in Wales, and Thinity church at Stratford-on-Avon.

The English cathedrals were frequently at the same time monastery churches and were then surrounded by great arrangements of buildings intended for monastery plans, among which the splendid chapter houses were arranged as purely Gothic central buildings. (See page 81 and ground plan K in Fig. 139). With them were also directly connected the establishment for learning. These occupied an important position in England and soon attained to high fame. For example, at the end of the 13th century the learned schools at Oxford were attended by nearly 30,000 students, who were lodged as fellow associates in about 300 halls, hospitals and halls, later chiefly termed colleges. In these colleges with their expensive gates, charming forms of bay windows and colossal state halls covered by richly treated vaults and showy wooden ceilings, the Perpendicular style 116 found that peculiar continuation, which it has retained until today in its principal traits as the "English Style".

IV. Scandinavia.

In Scandinavian lands the Gothic style reached no peculiar native development. On certain monuments predominate English, on others German influences, among the latter especially those, which come from northeast Germany. These soon crossed and adopted portions of the French form expressions, transmitted by stonecutters called in 1287 from France to Sweden. On the whole the art of the Gothic middle ages in these northern lands has produced but few creations of importance.

In Norway the cathedral at Drontheim originated in the 13th century (Fig. 149) and is to be mentioned (see page 42), whose splendid octagonal choir, the tomb of S. Olaf, is kept within the forms of the Early English Gothic of the first third of the 13th century, while the three aisled nave and the transversely arranged three aisled western building with two facade towers and rich treatment of the portal recalls the early German Gothic, but now only exists in ruins. The cathedral of S. Stavanger (page 42) received (after 1272) a choir likewise built in the Early English Gothic style.

In Sweden the cathedral at Linköping forms the chief work of the period. The second building was erected (after 1232) in the transition period (the first was begun in 1150), but in its third period was changed into a hall church with clustered piers and rich window tracery. In the building of the new choir with choir aisle and three radially arranged chapels for the last quarter of the 15th century, a German master Gerlach from Cologne participated. The cathedral of Upsala was commenced in 1287 by the French architect Etienne de Bonneuil on the cathedral ground plan as a brick structure with cut stone decorations. The choir, buttress system and the clustered piers are arranged in French forms; the remaining architecture of the nave and the stately facade with two towers rather follow the German models of the Baltic provinces (with the exception of the rose window likewise completed in 1435 under French influences. On the cathedral at Upsala also depends the cross-shaped plan of the cathedral at Skara, rebuilt in the 14th century, and which exhibits in the end wall the rectangular choir with a magnificent tracery window with six bays. Great-

Greater favor was enjoyed in southern Sweden by the system of the hall church, on which is also based the churches of the B Brigittine Order. As a model building of these is to be regarded the three aisled Brigittine church with rectangular choir at Wadstena, which was erected in blue stone between 1388 and 1430. In the extreme south of Sweden the church of S. Peter at Malmö and the Frauen church at Helsingborg, both with higher middle aisle, the former with five sided choir, choir aisle and circle of chapels, the latter with three sided choir aisle without chapels, adhered to the churches of north German brick Gothic.

V. Germany, Austria and Switzerland.

In Germany the Gothic did not appear as a direct continuation of the transition style, but it penetrated from France in the course of the 13 th century as a completed art style, yet it attained in the great German cathedrals the highest measure of artistic development of which it was capable in general. The numerous residence cities of the different princes and the free cities of the Rhenish and Swabian federation of cities and of the Hansa became the centres of a business, intellectual and artistic life, which found its most prominent activity in the domain of architecture. Under the influence of the German spirit the Gothic style still adopted many peculiar traits, even if the ground plan and the form treatment were also kept within the limits of the early determined development.

For the plan of the choir, the arrangement of the choir aisle with a circle of chapels did not attain supremacy in the measure, such as was the case in France. Less attention had to be paid to the clergy, since bishops' seats existed in Germany in much smaller numbers. Therefore men decided preferably for the plan of a polygonal choir apse for each aisle, or even in large churches were satisfied with a simple choir without a choir aisle. Likewise in the development in height the dominating height of the middle aisle was mostly omitted. The equal or nearly equal heights of all three aisles corresponded to the secular feeling of the Germans for plain simplicity better, than the rich graduation and subdivision of the basilican system. Thus the hall design in city parish churches was bet-

better suited as interiors for preaching and came into preferred use, particularly in the best and the late periods.

In the treatment of the facade was rejected the horizontal subdivision, still peculiar to the French style, and which did not correspond to the nature of Gothic. The German masters here went to the last result and emphasized verticalism by the elevated painted windows over the main entrance (instead of the French rose window) and by the interruption of the cornice by the buttresses. The German Gothic attained its completest development in the particularly characteristic architecture of towers, which produced truly grand works of the highest importance, both on facades with two towers, and also especially when the entire strength was concentrated on a single tower.

Of the three periods of the Gothic style, the early Gothic had a relatively brief duration, since the Gothic style had already reached its climax beyond the Vosges mountains at the time of its entrance into Germany. It appeared from 1220 onward in certain monuments (cathedral at Magdeburg, Liebfrauen church at Treves, church of S. Elisabeth at Marburg; see pages 126, 120), but first came into general use about 1250. The early German Gothic is characterized by:- simply treated piers of mostly square or round cross section, with projecting half columns, rounds in the ribs, and the simple tracery in chiefly circular forms; windows divided in two parts with small and graceful columns in the jambs and mullions; natural forms of leaves on the capitals; gablet caps of buttresses, and the execution of flying buttresses in simply cut forms.

About 1300 set in the high Gothic (best period) with richly clustered piers, the equilateral pointed arch (described on an equilateral triangle) in doorways, windows and arcades, finely divided tracery, whose openings however were still early composed of geometrical figures in the most diverse variations. The jambs were moulded at each side as deeply hollowed rectangular bands (without projecting rounds), and the vault ribs were profiled in pear shape. The natural forms of the ornaments were conventionalized. The buttresses received caps with finials, and the flying buttresses had an architectural development. Tower architecture is treated in a grand manner.

The late Gothic prevails in the entire 15 th century. It favored the hall type of church without transepts, preferred to replace the clustered pier by round or octagonal supports, mostly omitting rounds and capitals, so that the ribs directly intersect the piers and walls. The architecture results in a very rich and purely ornamentally conceived form of vaults (star, net and fan vaults, doubly curved ribs), and employs by preference the ogee arch in perforated gables, depressed and shouldered arches in windows, the fish bladder in tracery, latticed intersections of mouldings in columns, knobby, withered and strongly conventionalized foliage in the ornaments. The portals were preferably furnished with expensive and splendidly treated porches (Fig. 150).

At the end of the 15 th century there appeared scattered Renaissance forms from the South, in increasing measure after 1500; until the middle of the 16 th century, these were mingled with late Gothic forms, which slowly and entirely disappeared as a result, first in the 17 th century in many places.

The wealth of Gothic monuments on German soil is extremely great, so that on account of the limited space, we can only mention the most important works in this grouping, according to the different architectural provinces.

In the Rhine country the already mentioned (page 81) Liebfrauen church at Treves (1227-1250) is the first entirely executed as Gothic, and a church structure particularly interesting by its form of ground plan as a central design, which in a spirited way utilizes the motive given in the choir of the early Gothic church of S. Yved at Braisne (near Paris; Fig. 151). It was followed by the church of S. Elisabeth at Marburg (1235-1283), a hall design on a cross-shaped ground plan with three polygonal choirs as the termination of the three aisled nave, with the two (single aisled) transverse wings and two facade towers with massive pointed spires, the entire execution being in simple and noble forms. The foundation church at Wimpfen-i-T, 1262-1278, erected by an architect returned from Paris (in opus francigenum), is a cross-shaped basilica with two Romanesque western towers from an earlier central building. Of the great cathedral at Strasburg (page 36), whose mighty impression

Goethe once described with such inspiration, the three aisled basilican and spacious nave (Fig. 152), was built 1250-1275, then the famous facade, the masterpiece of Erwin of Steinbach (died 1318), and in the 15 th century the completed stone spire of the tower by Johann Hültz from Cologne in 1439, on the whole inorganic, but rising to a height of 465.9 ft. from the substructure (foundation). On the minster at Freiburg-i-B, (page 36), the likewise basilican and three aisled nave was begun in 1253, and in 1354 the noble choir built after the plans of Johann of Gmund, with the French cathedral ground plan, having choir aisle and a circle of chapels (only completed in 1513). The western tower was placed on a simple square substructure, and wonderfully treated above, was in 1301 carried up above the bell story. In beauty of proportions it was equaled by no other one; it forms the "highest and clearest expression of the Gothic idea". (Fig. 98). The most most unified and greatest, pure in matured Gothic forms as if executed with one inspiration, architectural work is formed by the cathedral at Cologne, in dimensions surpassing nearly all other French and German churches, founded in the year 1248. (Fig. 153). The choir was completed in 1322 entirely after the type of French cathedral ground plans of the best period (page 101). It almost completely coincides with that of the cathedral of Amiens. The plan for the cathedral certainly was by master Gerard. The three aisled transepts projecting from the side walls by two bays and the five aisled nave were probably commenced after 1322 and continued until 1450. Then occurred a pause for nearly four hundred years in the building operations. Only in the 19 th century the nave and the two colossal western towers were completed after the rediscovered ancient plans and with the spirited participation of the entire German nation. Of the other more important buildings of the early and the best periods, the magnificent monastery church at Altenberg-o-L (1225-1267) follows France models. On the cathedral of S. Victor in Xanten the choir plan is formed like one half the Liebfrauen church at Treves. In Hesse the church of S. Elisabeth at Marburg influences a series of buildings, among which are the principal church at Alsfeld, the foundation church at Wetzlar and the

city church at Friedberg. The charming church of S. Catherine at Oppenheim (1262-1317) agrees in the choir plan by the diagonally placed chapels with the Liebfrauen church at Treves, but follows the cathedral of Cologne in its rich buttress system, to whose school is likewise to be referred the grand choir building of the minster at Aix-la-Chapelle (see volume 1, page 177). In the 15 th century originated the Liebfrauen church at Worms-o-R, a cross-shaped basilica with choir aisle and two facade towers, and the church of S. Willibrod at Wesel, a heavy five aisled basilica with transepts; these go so far in richness of the treatment of the ceiling, that in the southern side aisle two systems of ribs are arranged above each other, the lower ones extending as a network over the true ceiling. Of the churches in Alsace-Lorraine, the cathedral of Metz (Fig. 154), substantially erected during the 14 th century, directly refers to French models, particularly of Rheims. The minster at Schlettstadt is a work of the early period, and likewise S. Martin in Colmar with the western facade completed in the 15 th century, also the church at Rufach. The matured and late Gothic style is represented by the church of Thann.

In southern Germany one of the first Gothic buildings is the basilican nave of the church of S. Sebald at Nuremberg, erected in the second half of the 13 th century. From 1361 -1378 was added to it the spacious eastern choir as a hall design. Likewise the nave of the church of S. Lorenz there, arranged without transepts (from the second half of the 13 th century) still has the basilican plan and a very beautiful hall choir. Built in 1445-1472 after the plan of the cathedral architect, Conrad Roritzer of Regensburg. The facade with two towers retains a noble simplicity. (Fig. 155). The first complete hall church of Nuremberg is the three aisled Frauen church with square plan with single aisled choir, erected 1355-1361, rich gable and splendid two story vestibule. There follow it the extremely richly decorated chapel of S. Mary at Würzburg (after 1377), as well as the church of S. Martin at Landshut (begun before 1392), the Frauen church in Ingoldstadt (begun 1425, completed about 1500), and the Frauen church at Munich, built 1468-1488. The three buildings last mentioned were built in

the brickwork usual in the region, in severe and somewhat tasteless treatment of the forms, but with grand and enclosed internal effect. In Augsburg a master of late Gothic, Burkhard Engelberger, again attempted the earlier scheme of the cross basilica in the church of S. Ulrich (1464-1499), with luxuriant treatment in the latest forms of the Gothic style. To the French cathedral system returns the monastery church of the neighboring Kaisheim (1352-1387), a basilican cross plan with double choir aisles, the outer one of which is divided in chapels. At Regensburg in the cathedral was carried out (after 1275) the chief work of Bavarian Gothic with an early Gothic choir of three polygonal apses arranged after the German manner, basilican nave in three aisles from the 14th century and a western building (Fig. 156) with a triangular porch from the 15th century, but the stately pair of towers were first completed in the second half of the 19th century. A peculiar place among the Gothic churches of Bavaria is occupied by the twelve sided central building enclosed by low polygonal chapels, of the monastery church at Ettal in the Bavarian Alps, founded in 1330 by the emperor Louis the Bavarian, perhaps with the purpose of erecting a temple of the Graal after Wilhelm von Eschenbach's Titirel.

In Swabia the already mentioned foundation church at Wimpfen-i-T. (page 120) is followed by the church of S. Mary at Reutlingen (1247-1343), a basilican, spacious and nobly treated city church of the early Gothic style. As a peculiar creation for the later Swabian churches was the church of Heilige Kreuz in Schwäbisch-Gmünd, erected by Heinrich Parler (Arler) * as a hall structure with hall choir, begun about 1330, the choir building in 1351, and completed in 1521. It is a very stately three aisled design, whose nave is separated by slightly projecting transverse aisle from the elongated choir. This has a choir aisle with a circle of chapels between the buttresses, which are drawn inward. Complicated star and net vaults, that rise above slender round piers with low capitals, cover all interiors (Fig. 157); rich ornament in relief enhances the dignified general impression. The same system, but with simpler choir ending, is found in the extremely graceful Frauen c

church at Esslingen, begun 1324, (Fig. 158), in the erection of which with its splendid tower were engaged the most important Swabian masters (Ulrich of Ensingen, Matthäus Ensinger and Hans Böblinger). Here further belong the hall churches of S. Michael at Schwäbisch-Gmünd and S. George at Nordlingen and at Dinkelsbühl, also with hall choirs, while the foundation church at Stuttgart decides for the earlier form of choir, a after the example of the Frauen church at Esslingen. To a great work of the first rank the Swabian school of architecture rose in the minster at Ulm. In this building erected as a city parish church was to arise an unequaled monument of the independent and heaven-aspiring sense of the citizens of the city on the Danube, in that powerfully aroused time of the late middle ages. Designed originally (1377) as a hall plan with three aisles of equal width by masters from the Gmünd family of Parler, the building was transformed into a five aisled basilica without transverse aisle and with an elongated choir ending in a half decagon, by Ulrich of Ensingen, the greatest German architect of his time, who was also employed in Milan, Strasburg and Esslingen, taking charge of the building in Ulm in 1392. The side aisles were completed in the year 1500, and the magnificent spire of the imposing western tower, which by its height of 528.2 ft. rises about 16.4 ft. higher than the towers of Cologne cathedral and thus becomes the highest tower in the world, was only completed in the year 1890, according to the preserved designs by Matthäus Böblinger. To the Swabian master Matthias of Ensingen, the son of the above mentioned Ulrich, is also due the minster at Berne, a pier basilica without transepts and with a strongly projecting porch opening by three great arches, and with moderate facade towers.

* See page 126 under the note. That Heinrich Parler may pass as the builder of the Kreutz church is certainly an assumption, whose correctness is not yet demonstrated against all objections. (See Dehio, Handbuch der deutschen Kunstdenkmäler. Vol. 3. page 147).

In Austria the hall type prevailed after the middle of the 14th century. It was already represented in 1295 by the magnificent choir at Heiligenkreutz, then in 1300 by the Augustin-

Augustinian church at Vienna, and at the same time by the famous cathedral of S. Stephen there, one of the most important works of German Gothic. The three aisled nave passes into a similar choir (dedicated 1340) with a polygonal termination of the aisles after the south German manner. In stead of the transepts are arranged two towers, of which oncy that on the south side was built in a slender pyramidal form rising directly from the ground (dedicated 1433). An example of the splendid internal treatment is given by Fig. 159. In Bohemia the cathedral of S. Veit on the Hradschin at Prague (Fig. 160) is the chief work of the Gothic period. It was begun in the year 1344 by master Matthias of Arras, called from France by the emperor Charles IV, as a cross-shaped basilica in a grand style after the model of the cathedral of Narbonne with round choir, choir aisle and circle of chapels. After his death in the year 1352 the control of the building passed to the Swabian master Peter Parler, son of master Heinrich of Gmünd. * The latter was employed for 40 years on the structure, completed the choir in 1385, and commenced the massive tower structure, which took its place over the south transept as at the cathedral of S. Stephen in Vienna, but was only finished later. To the same master is also referred the church of S. Barbara at Kuttenberg (begun 1386), an originally three aisled and later five aisled basilica with high middle aisle vaulted with doubly curved ribs (Fig. 161), a low choir aisle between the buttresses, which are moved inward, and rich buttress system with doubled flying buttresses, but without facade towers. To the school of this master also belongs the Karlshofer church in Prague (founded 1351). On this the nave system is connected with the central design, since the nave adjoins an octagonal structure, that was perhaps influenced by the imperial chapel at Aix-la-Chapelle. The domical stone vault covering it appears as a highly important structural work.

** In some works on the history of art the master succeeding Matthias of Arras as architect of the cathedral of S. Vett in Prague is named Peter Arler. This appellation has been demonstrated to be a jocose falsification of the Swabian name of "Parler".*

In middle Germany some architectural monuments already mentioned among the works of the transition style take an important part in the development of the Gothic style. Of basal importance was the cathedral at Magdeburg. (Page 33). It still received the Romanesque ground plan, but with the French form of choir with choir aisle and circle of chapels. Its structure was begun in the old forms but carried on after 1220 in the Gothic style; only in the 14th century was it partly completed in late Gothic forms. Likewise the construction of the cathedral at halberstadt (Fig. 162) continues through the 13th, 14th and 15th centuries. The cathedral at Naumburg received about 1270 its early Gothic western choir. At about the same time the cathedral at Meissen was founded as a basilican plan with transverse aisle, whose nave was changed into a hall church in the 14th century. The like change was experienced in the 14th century by the spacious church of S. Mary at Mühlhausen in Thuringia, now with five aisles, and in the second half of the 15th century by the three aisled cathedral at Erfurt, enthroned on a massive substructure. The late period further produced a connected group of hall churches in the east of middle Germany, that exhibit the octagonal piers with hollowed sides (shallow flutes) and the shouldered arch (page 96) in the windows as special peculiarities. Here belong the church of S. John in Plauen (1450), the church of S. Maria in Zwickau (after 1465), the cathedral at Freiberg-i-S. (after 1485), the Anna church in Annaberg (1499), the Wolfgang church in Schneeberg (1515), the City church at Pirna (after 1502) and the Castle church at Chemnitz (1514-1525).

In Westphalia the hall form is the expressed native type of building. We have already referred to the cathedrals at Paderborn and Minden (page 34). The latter can also be counted among the chief works of early Gothic on account of its spaciousness and the magnificent decoration of its nave with rich blind tracery. In the 14th century, there originated as model hall churches with nearly square ground plans the church of S. Maria at Herford and the Wiesen church at Soest, that carried to the extreme result the Gothic principle of construction by omitting the capitals etc. A form of larger ground plan after

the model of the Hessian churches is shown by the Liebfrauen church at Münster and the Catharine church at Oshabrück. The two aisled porch erected in 1469-1474 in the place of the northern side aisle of the cathedral at Brunswick (Fig. 163) is a characteristic show piece of mechanical and technical ability of stonecutters in the late Gothic period.

The north German lowlands occupy a separate place in the evolution of the Gothic style, because its forms are changed into brickwork, the ancient native material. With the splendid Cistercian church at Chorin in Brandenburg (1274-1334) appears a fresh brick Gothic, true to the material, that was further developed by the mendicant Orders succeeding the Cistercians. The latter brought into use particularly the hall construction. On the church of S. Maria in Neubrandenburg, dedicated 1298, the detached mullions and tracery recall the gable on the Strasburg minster. In a similar manner, but considerably richer in treatment is the great show gable concealing the three aisles of the church of S. Maria at Prenzlau (1328-1340), on which red and dark glazed bricks alternate. It characterizes most strikingly the special style of the Mark. The matured rich style of brick Gothic at the change from the 14 th to the 15 th century is represented by the church of S. Maria at Königsberg in the Neumark (tower from 1458), and the Catherine church at Brandenburg. The Stephen church in Tangermünde (after 1470) is old, transformed into a Gothic basilica with choir, transverse aisle and chapel. To the 15 th century also belong the two splendid principal churches at Stendal, the cathedral and the church of S. Maria, both hall churches with two western towers.

In the Baltic provinces the brick Gothic developed a luxuriant magnificence, especially in the Hansa cities. Men there left the French cathedral ground plans with choir aisle and circle of chapels and erected the buildings according to the basilican scheme, whereby the surfaces of the facades were animated by an alternation of black glazed and colored bricks, sometimes also by blind tracery on a white ground. The ornamental decorations were in terra cotta (Fig. 164). Thus originated the church of S. Maria at Lübeck (1270-1310), the church of S.

Maria at Rostock in the 14th century, the churches of S. Maria and of S. Nicolas at Wismar, the churches of S. Nicolas at Greifswald and at Stralsund, and among monastery churches the charming Cistercian church at Doberan. The hall system is represented by the church of S. Johann at Thorn, begun in 1260, and by a very rich monument in the cathedral at Frauenberg, completed 1388. The two great hall churches of S. Peter at Lübeck, five aisled, and of S. Maria at Danzig, a three aisled plan, are in their essential architectural parts, works of the late Gothic of the 15th century.

VI. Italy.

Already about 1200, and thus at a time when the Gothic in France had not reached full maturity, its style of art also penetrated from France into Italy by the mediation of the Cistercians. But what characterized the northern Gothic, the resolution of the masses, the buttress system and the tendency toward height, were not adopted by the Italian masters. To their inborn art feeling, strengthened by many centuries of exercise corresponded only wide interiors of moderate height and a horizontal subdivision of the masses. And yet the general spirit of the time influenced them so strongly, that supported by the particularly strong influence of the Cistercians in Italy and that of the succeeding mendicant Orders, it brought about 1250 a complete break with antique traditions, which continued until the end of the 14th century. In the pointed arch was presented a welcome means of covering as wide interiors as possible. But the wall surfaces retained their southern privilege on account of the expressed enjoyment of monumental paintings. The wide-arched middle aisle with like placing of the supports and high side aisles, over which in the clear-story remained only space for small and frequently circular windows, that were still sufficient beneath the southern sky, produced a wonderfully harmonious internal effect, that exhibits an individuality totally different from the narrow and lofty cathedrals of the North. (Compare Figs. 168 and 170 with 130). In reference to the creation of the interior, the greatest was undertaken on Italian soil; for no cathedral of the North equals that of S. Petronio or of the cathedral of Milan.

The architectural treatment but seldom shows the strict Gothic principle; this remained unknown to most Italian architects. The polygonal pier was far more simply treated, mostly without regard to the direct relations of the rounds and the plan of the vaults. On the relatively strongly developed capitals is but exceptionally found natural foliage, and so much more commonly the bud forms of the transition style with leaf shapes, that still recall the acanthus. The window tracery assumes a flat character. To the entire exterior is lacking the rich subdivision in the sense of the northern Gothic. The low and thereby light roofs of the South make lower side walls and the buttress system is unnecessary. The flying buttress can be entirely omitted in view of the higher side aisles, in consequence of which the clearstory walls extend but little above the side aisles; the buttresses assume more the character of Romanesque wall strips. Not infrequently are iron rods and even anchored wooden beams inserted at the imposts of the vaults to receive their side thrust. (Fig. 170). Towers were not included in the general organism. One bell tower stood beside the building as if detached. (Fig. 171). In the development of the facade only chiefly the pointed arches, triforium, the pattern-like tracery gables and finials with imitations of the crockets and cross-flowers recall the northern Gothic. Very frequently is employed a means foreign to the nature of the style, facings of marble in different colors. The western facade was treated as a particular show piece. The enjoyment of the Italians in ornamental accessories rose here to an extravagant abundance of sculptured and mosaic decoration. (Fig. 169). In the ground plan occurred the cathedral type in comparatively small measure. The churches influenced by the Cistercians and Franciscans generally have the rectangular enclosed choir with similar side chapels. This choir plan in north Italy is joined by a three aisled vaulted nave, in Tuscany and Umbria by a single aisled nave with visible roof framework.

In the development of Italian-Gothic art lower Italy indeed precedes in time. The abbey church of the Cistercians at Fossanuova, erected by French architects after French models (abbey church at Pontigni, page 46), was already dedicated in 1208.

Its influence may be followed in numerous churches between the Tuscan and Adriatic Seas, in the south to Calabria (Cosenza) and in the north to Tuscany (Siena). But the chief region for the development of Italian-Gothic art lies in upper and middle Italy, particularly in Lombardy, in Tuscany and in adjacent Umbria.

In upper Italy S. Andrea at Vercelli (after 1219) is the oldest Gothic church. Its clustered columns and buttresses permit the recognition of the direct influence of Parisian early Gothic. In the second quarter of the 13th century was located the great architectural activity of the Franciscans, and in the last quarter was that of the Dominicans. S. Francesco in Bologna (after 1246) represents the cathedral type with choir aisle and square chapels (like the abbey church at Pontigny in Burgundy). The nave still follows the restricted system of vaulting. The same form of choir is shown by S. Antonio in Padua. (1232-1307). In the vaulting of the nave and transverse aisle are expressed here the strong influence of the domed system of S. Marco in Venice. About the end of the 13th century vaulted churches became more common. The piers became round and received octagonal abacuses. Then arose S. Lorenzo in Vicenza (1280), the Franciscan church dei Frari (1330) and the Dominican church of S. Giovanni e Paolo in Venice (1333). S. Maria del Carmine in Padua (begun 1373) retains the Lombard construction with square bays. The facade is the noblest example of the early Gothic style of upper Italy.

An independent position is taken by the famous church of the Certosa (Carthusian monastery) near Pavia (Fig. 165), built after 1346 by Marco di Campione as a three aisled plan with chapels at both sides of the nave, transverse aisle and choir, the latter arranged as three equal arms of the cross and terminating in trefoil form with three apses. The vaults are pointed. But in the arcades and windows are already found the round arches of the early Renaissance, which presents one of its finest and most magnificent works in the noble marble facade.

To the founder of the Certosa, duke Galeazzo Visconti, is also to be referred the principal church in the Gothic of upper Italy, the cathedral of Milan. It was commenced in 1386 as a cross-shaped plan with five aisled nave in the basilican char-

basilican character, but without clearstories. The two outer side aisles are considerably lower than the middle one; the transepts are three aisled, the choir octagonal with choir aisle and without the circle of chapels. In its entire structure with clustered piers and developed system of buttresses is expressed the influence of northern art much more strongly than in the other Gothic cathedrals of Italy. During the erection of the building German masters were frequently called in, like Heinrich Parler of Gmünd and Ulrich of Ensingen (see page 124), when the Italian architects helplessly attacked the resulting structural difficulties. The colossal structure reached completion first in the 19th century, after it had received many additions in later times, foreign to its style forms. But in its entire external architecture, executed in noble white marble, the Milanese cathedral appears as a luxuriant conservatory of the richest sculptured ornamental work (Fig. 166), that covers the nowise harmonious organism of the building like a splendid state garment. Yet far greater than the cathedral of Milan, whose internal area is equaled by no other Gothic church in the world, the rich city of Bologna conceived the idea of establishing a church dedicated to its greatly venerated protecting saint, S. Petronio. According to the plan designed by Antonio di Vicenzio of Bologna with the assistance of Fra Andrea Manfredi, a colossal structure of unheard of dimensions should arise with a length of 708.7 ft. and a width of 355.6 ft. across the transepts. (The corresponding dimensions of the Milanese cathedral are 485.3 and 288.7 ft.), as a three aisled basilica of the cathedral type, yet with square chapels (according to the precedent of S. Francesco there, see page 132), which should also extend along both sides of the transepts and of the nave. Unfortunately only the nave came to be erected. Political occurrences and the beginning of the Renaissance brought the building to a stand. In the year 1647 it was decided to not continue the work further and to terminate the nave by a small choir niche. But even as a fragment, S. Petronio presents to us the most perfect interior in Italian Gothic. Of the small Gothic churches of upper Italy, S. Maria in Strada at Monza (after 1393) affords an attractive example. (Fig. 167).

In middle Italy already in 1228, thus at a time when Germany could show no real Gothic principal churches, one of the chief Gothic churches of Italy was founded in S. Francesco at Assisi. The high terraced site was utilized for the construction of a lower church, over which rises a single aisled upper church, consisting of five square bays, of which the eastern one is extended by an altar apse, and at both sides by somewhat smaller bays forming transepts. Bold wall piers, subdivided in the sense of the northern architecture, support the cross vaults and their ribs, treated as wide moulded supports. The effect of this unified and undivided interior is uncommonly dignified and imposing, being supported by the artistically very important frescos. The churches built by the Franciscans, of S. Francesco at Siena, Bistojia, Pisa and Cortona have the ground plan of the monastery churches of the Cistercians with square and cross vaulted choir, that is flanked by similarly arranged small chapels. Their most important and truly grand work is the great church of S. Croce in Florence, begun in 1294 after the plans of the cathedral architect Arnolfo di Cambio as a three aisled and spacious basilica with transepts, which are enlarged on the eastern side by ten chapels, whose centre is occupied by the polygonal choir. The interior exhibits in the middle and side aisles the visible framework of the roof. (Fig. 168). The dazzling white marble facade is a work of the 19th century executed after an old design.

Otherwise the churches of the mendicant Orders are externally plain rough brick buildings, whose facades still await their facings. The Dominicans followed basal principles similar to those of the Franciscans, but besides the single and three aisled churches with visible roof framework also treated such with vaults, and originated the beautiful three aisled and vaulted and cross-shaped basilica of S. Maria Novella in Florence, begun in 1278 by the Dominicans Sisto and Ristori, completed in 1357 by Jacopo Talenti. It is the noblest work of Tuscan Gothic. * Its system is afterwards met with in the cathedral of Arezzo, located farther south. Giovanni Pisano erected in Pisa the famous Campo Santo (1278-1283) a rectangular cloister surrounded by porticos internally beside the cathedral. The

little church of S. Maria della Spina there was built in 1230 and enlarged in 1323 has a rich marble show facade, on which the luxuriant finals are quite loosely placed.

The epoch-making chief creations of the Gothic in middle Italy are the great cathedrals of Siena, Orvieto and Florence. The cathedral at Siena was begun before 1250 as a three aisled nave with similar transepts and a choir, that appears as a continuation of the nave and ends in rectangular form. The piers with square nucleus and four half columns are faced with alternate courses of white and dark green marble. The entire interior is covered by round arched cross vaults; over the intersection of the nave and the transepts rises an inorganically placed dome over a hexagon set diagonally and changing above into a twelve-sided polygon. A true masterpiece is the facade designed by Giovanni Pisano in 1284, executed in light, dark and red marbles, furnished with overrich sculptures, on which scarcely one stone remains without ornament. (Fig. 169).

** Michael Angelo was so enraptured by the church of S. Maria Novella, that he called it his bride.*

In striking contrast to it is executed the facade of the cathedral of Orvieto. The building was commenced before 1285 and from 1310 was carried on by the Siena architect Lorenzo Maitani. The architectural members here have somewhat reduced projections in favor of an unusually rich and splendidly colored mosaic ornamentation. Not only do the tympanums and wall panels gleam with figure compositions on a gold ground in glowing splendor (indeed but partially belonging to the 14th century), but also all purely structural members, even the finals are covered by mosaic decoration. The interior is a three aisled columnar basilica with visible ornamented roof framing over the nave and vaulted transepts and choir, that terminates just like that in Siena.

The cathedral in Florence was begun in 1296 by Arnolfo di Cambio, was interrupted repeatedly, and after long conferences and several competitions was completed in the year 1462 by different masters, among whom are to be named the famous painter Giotto di Bondone, Francesco Talenti, and the great Roman master Filippo Brunelleschi. The great aim of the Florentines was to establish in it a work, which should surpass all others.

churches of Italy. The ground plan is composed of a three aisled nave with four continuous bays and a central structure, that consists of an octagonal domed space and of three polygonal apses occupying the places of the transepts and choir. The apses are each enlarged by five square chapels lying between the buttresses, that are drawn inward. In the structure the Gothic style assumes an expressed Italian character, where the ornamental forms of the Gothic are fused with antique subdivisions and arrangement of lines. The interior (Fig. 170) is more effective by the bold proportions of the arches of wide span, than by the perfect harmony of all parts, the exterior by the facing with white and dark green marble slabs. The main facade was even commenced in the 14 th century, was richly adorned by statues and reliefs, but in 1587 as being "opposed to" architectural rules and reason", it was removed and only erected anew in the last quarter of the 19 th century with reference to the ancient plans. In perfected beauty parades the bell tower erected beside the cathedral. (Fig. 171). Giotto designed the plans in 1334, which were also retained in general by the later architects. The tower rises from a square ground area undiminished to a height of 275.6 ft., and indeed has an enrapturing effect by its dignified marble covering, finely treated cornices, and the rich handling of the windows, ever becoming larger upwards. (Fig. 172).

All these churches belong to the basilican type. The hall system is only represented in the Gothic period in Italy in the cathedral of Perugia with three aisles of equal height, after the northern manner (as in the church of S. Elisabeth at Marburg). It was begun in 1300, but probably first transformed into a Gothic hall church by its rebuilding in 1447. To the 15 th century likewise belongs the cathedral of Pienza, which on the order of the Pope was imitated from an Austrian hall church, but only appears Gothic in the ground plan and the treatment of the vaults, while the architectural details and the facades already exhibit the forms of the early Renaissance.

The capital city of Rome remained far behind in the rich and great architectural activity of the cities of upper and middle

Italy, on account of the unfavorable political conditions -- the noble families were in strong enmity in the Gothic period with each other, the people and the Papacy. The Cosmati (page 53) indeed enriched their minor architectural works with Gothic forms, and had created magnificent works, with which furthermore the works of Florentine masters competed even on Roman soil. The single great architectural work of Gothic in Rome is the vaulted church of S. Maria sopra Minerva, erected after 1280 by the Dominicans, whose three aisled nave is enlarged by side chapels, and whose transepts likewise end in choir chapels, the middle one terminating with a semicircular apse.

In lower Italy the dry early Gothic developed in the time of the Hohenstaufens, but still rather remaining in the transition stage, was introduced by the Cistercian church at Fossanuova (page 131), under the French monarchs of the house of Anjou (1266-1442) was succeeded by a "decomposed and reduced late Gothic" of a Burgundian type, of which S. Lorenzo in Naples (1266-1324), a church of the cathedral type with choir aisle and five radial chapels, represents the most important monument. In Sicily the earnest Norman architectural forms are combined with the gayer Mohammedan ornament and the Byzantine splendor of pictures into a harmonious unity of peculiar magnificence. (Fig. 173). The porch of the south side of the cathedral of Palermo (Fig. 174) is a work of this style from the middle of the 14th century.

Offshoots of the Gothic of lower Italy also found admission farther East in Cyprus by the mediation of the crusades, where among others the metropolitan church of S. Sophia in Nicosia, erected at the beginning of the 13th century, exhibits a plan allied to the cathedrals at Sens and Paris, yet wanting the circle of chapels. Even in the Holy Land may be followed the echos of this style in church architecture, even if then are also proved now in few architectural remains.

VI. Spain and Portugal.

About the middle of the 13th century the Gothic style found entrance into the Iberian peninsula, and indeed it was the art style of northern France, which in its full maturity was chiefly introduced by the mediation of the Cistercians. Yet the

style only attained here in a limited sense to an independent development. The two young Christian kingdoms of Aragon and Castile were in the 13th and 14th centuries too much occupied with the arrangement of their political conditions, to be able to devote themselves to an energetic fostering of art, and likewise Portugal, and when in the course of the 15th century the people of the Iberian peninsula were favored by the epoch-making discoveries of their seamen, and rose for a brief period to a world supremacy, by which unexpected wealth flowed to them, then men were compelled to call foreign artists into the country. Chiefly Netherlanders, Germans and Italians were invited. On the works instituted by them was gradually formed an independent and natural style of art, but which was less expressed in the form of plan of the buildings, than in their spaciousness and luxuriant and ornamental treatment of the southern character.

In Spain the churches retained the high enclosure of the priests' choir in the middle aisle (page 57), placed their most sacred chapel (capilla major) instead of the northern choir, connecting this with the priests' choir by a latticed passage. The side aisles were enlarged by rows of chapels, that were frequently continued at all external walls. In regard to the form of ground plan, there appeared such a great preference for the French cathedral system with choir aisle and rich circle of chapels, that men firmly adhered long to there, even during the victorious advancement of the Renaissance. Also in this the Spanish cathedrals pursue a course peculiar to them in that they retain the cloister and even treat it richly, while the principal northern churches of the bishops' omit it as a rule after the 13th century. As in the general plan so also in the axial relations and the like were the prototypes of northern France at first determinative. With the beginning of the 14th century appear more strongly the influences of the art style of southern France. The architects first of all aimed to create grand interiors, and they completed these with very important structural works. But thereby also the basilican type first disappeared in the northeast and in the 15th and 16th centuries in all Spain. Church architecture turned

to the hall system, which favored the endeavor for a unified treatment of the interior. This appears in the northern provinces in its pure form, but in the middle and southern regions passed into a peculiar development. There the buildings assume a very wide plan in the form of a slightly elongated rectangle with five or seven aisles, among which the middle and that taken as the transverse aisle are but moderately wider than the others and are but little higher. The eastern side terminates either in a rectangle or in small chapels, which are repeated along the sides. Thus these Spanish church buildings approximate in the form of ground plan to the arrangement of the mosque usual among the Moors.

The structure continues in the forms of its prototype, on which the works are based, or with which the masters were acquainted in their native country. Therefore it is very rich in changes. But the window openings were chiefly limited to smaller dimensions in comparison to those of the northern churches. The heights of the side aisles as a rule were reduced outward (as at the cathedral of Milan, page 133). The tower structure over the crossing, already peculiar to Spanish churches in the Romanesque period (cimborio, page 58), was retained and treated with particular richness. (Fig. 177).

In architecture and decoration the Spanish art spirit first appeared more strongly; there developed that rich and flourishing late Gothic style, which the Spaniards designate as "estilo florido". Almost the entire second half of this century belongs to it. It is also much permeated by Moorish motives, but follows the basal course of the luxuriant Flamboyant (Fig. 175). Besides it the Mudejar style (see volume 1, page 124) practised by the Moorish workmen and artists, more indeed in palaces than in church buildings, reached a splendid development, to which Moorish techniques and the Moorish ornamental style, with the adoption of Gothic lines and decorative forms, gave its individual stamp. (Fig. 175).

About the end of the 15th century appeared an enrichment of the ornamental expedients of architecture peculiar to Spanish art. In the continued endeavor to heighten the artistic effect, the ornamental forms of metal work, particularly those of

the goldsmith's art, which then flourished greatly in Spain, also found entrance into architecture at a time, in which the new Renaissance motives came there from Italy. Thus originated the Plateresco, i.e., "goldsmith's style", in which the flourishing Flamboyant was fused with the fine patterns of the Mudéjar and the elements of the early Italian Renaissance into an extraordinarily graceful and showy art style. Its beginnings go back to the year 1480, but it only reached full maturity in the 16th century.

The three chief works of Spanish Gothic of the 13th century belong to the school of northern France; these are the cathedrals of Burgos, Toledo and Leon. The cathedral of Burgos (Fig. 177) was founded in 1221, and is a three aisled cross-shaped basilica with choir aisle and rich circle of chapels. The nave has clustered piers with massive round piers in the choir and rich decorations on bases and shafts. The facade forms the show piece of Spanish Gothic architecture. The two state-ly western towers were erected in complete consistency by a German master Johann from Cologne (1442-1458). (Fig. 179). Yet more imposingly planned in proportions is the cathedral of Toledo (Fig. 180), begun 1227, with a double choir aisles and a circle of chapels, that are continued to the western facade, adorned internally by richly subdivided piers and splendid show decoration, interwoven in which are Moorish motives of many kinds. The cathedral of Leon was built in the second half of the 13th century and bears strongly expressed the traits of the Gothic of northern France, that may be recognized in the almost complete resolution of the walls into the windows. In the lines of its plan, it follows the system of the plan of the cathedral of Rheims. At the end of the 13th century was also commenced the cathedral of Barcelona (1298-1448), a three aisled building with chapels between the buttresses moved inward, arches of very wide spans on unusually slender piers, airy galleries over the side aisles, and a but moderately raised middle aisle. Yet wider is the middle aisle of Maria del Mar in Barcelona (1328-1383), widest of all churches on the Spanish mainland being that of the collegiate church of Manresa (n (near Barcelona) with a distance of 60 ft. between axes. But

even this dimension is still inferior to that of 64 ft. in the middle aisle of the cathedral in Palma on the island of Mallorca, allied to the cathedral of Florence in spaciousness. Finally the cathedral of Gerona (in northeast Spain) in its single aisled nave extended by chapels and placed before the three aisled choir, -- it was originally planned with three aisles, -- reaches in the four cross vaults a span of 73.0 ft., the greatest span of a vault in all mediaeval architecture.

145 The hall type is splendidly represented by the cathedral of Saragossa. (Zaragoza). This building was erected after 1318 as a rectangular ground plan with five aisles and five bays in each, a row of chapels on both sides, transepts, which do not project beyond the line of the chapels, three abses and a cimborio, the largest hall church in the world. The chief work of the 15 th century is the cathedral of Seville, planned in colossal dimensions and built after 1403 on the site of the old chief mosque. Its ground plan has the form of a rectangle, including a five aisled nave and single transverse aisle with the same width as the middle aisle, with rows of chapels between the buttresses drawn inward along both longer sides and at the altar end. By the strong elevation of the side aisles, the interior makes the impression of a hall church. All rooms have cross vaults with the exception of the crossing, that is covered by a domical vault instead of the cimborio, that fell in 1512. The tower in its lower portions belonged to the mosque, the famous Giralda, the emblem of Seville, and serves as the bell tower. Of the hall type native in the north is the church at Medina del Campo, and of the hall churchss, the monastery church of S. Juan de los Reyes in Toledo (after 1477), treated in the most luxuriant Plateresco, are to be mentioned, and whose splendid cloister is represented in Fig. 181.

96 Even in the 16 th century Gothic architectural works of importance were erected in Spain; the cathedral of Salamanca, begun in 1512, designed by Anton Egas and Alfonso Rodriguez, cathedral architects of Toledo and Seville, and that is a mean between those of Toledo and Seville, has a three aisled plan with rows of chapels on three sides, and shows a developed buttress system in the structure, and further the cathedral of S

Segovia, erected after 1522 in noble and still pure late Gothic forms, as well as the cathedral of Granada, begun in 1523 by Enrique de Egas (a brother of the previously mentioned Antonio Egas), which however only shows the Gothic design in the ground plan, but the structure is entirely arranged in the forms of the Renaissance.

Portugal likewise in the 13th and 14th centuries did not attain an artistic independence (Fig. 59). The international Gothic imported from France and Spain at first only occasionally exhibits Moorish tendencies. First about the end of the 15th century with the great political rise of the country appeared an independent and rich art climax, that (after 1480) runs parallel to the development of the Plateresque style in Spain, but in Portugal the Moorish mode of ornamentation becomes stronger and later (after Vasco di Gama's return from the East Indies in the year 1499), even Indian forms are adopted. In the 16th century with this luxuriant style (arte manuelina) after the great king Emanuel (1495-1521) * are combined the forms of the early Italian Renaissance. These were chiefly introduced into Portuguese art by the Italian master Andrea Sansovino, who was called to Lisbon by Emanuel's predecessor, Johann II. To this were yet added finally numerous motives of Netherlandish art by means of sea voyages. The architectural and ornamental forms so originated did not in the end prove progressive and faithful; but considered by themselves, they still form an interesting mode of expression with a peculiarly fascinating charm. (Fig. 182).

** Under the wise government of this monarch blossomed the "golden age" for Portugal.*

As the earliest work is to be mentioned the Cistercian church of Alcobaca, already commenced in the Romanesque period and dedicated in 1222 (page 59), whose choir represents the Burgundian cathedral system, while the nave is influenced by the church architecture of western France. The developed Portuguese Gothic art finds its centre in the grand monastery design at Batalha. Founded in the year 1385 after the splendid victory of the Portuguese over the Spaniards, which secured their independence, the monastery was intended for the Dominicans and

first acquired the church, a three aisled basilican structure with high side aisles, transepts and five parallel choirs after the style of Cistercian designs, but with polygonal apses. To this were added the square tomb chapel of the founder, erected in the line of the facade and attached to the nave, also the great cloister and the refectory, chapter hall, and the other buildings belonging to the monastery plan. About 1450 was added a second cloister, and in 1551 a third square of buildings with a cloister. It seems doubtful that English influences contributed to laying out the plan. The artistically most noteworthy portion of the architecture is the "capellas imparfeitas", added after the beginning of the 15th century at the eastern part of the church on its middle axis, a great octagonal central building, that if it were completed, would form the most important Gothic central structure, besides the Liebfrauen church at Treves. The lower story bears expressed English traits. The upper story (after 1491) was extended by Joao de Oestilho, the greatest architect of Portugal's best period. It is showy in that fancifully combined style form, from Gothic, Moorish, Indian and Renaissance elements, in which the latter gradually attained predominance. The developed Manuel style of the 16th century is most characteristically shown by the choir of the Knights of Christ at Thomar (Fig. 184) and the charming monastery church at Belem (after 1500), a magnificent hall design with net vaults above richly decorated slender piers (Fig. 185). Above the church lies the enrapturing cloister represented in Fig. 286, whose principal motives however already belong to the form series of the succeeding period.

B. Monastery Designs and allied Groups of Buildings.

However deeply the Order of Cistercians and those of the succeeding Franciscans and Dominicans were concerned in the evolution and spread of the Gothic, and also how great was the architectural activity developed by them in the erection of churches and monasteries, they introduced no substantially new ideas in the design of the monasteries themselves; afterwards as before, the scheme of the monastery of S. Gall remained de-

determinative (see volume 1, page 182), even if also occasionally varied or new buildings were based upon it in a richer or simpler manner. Larger plans sometimes provided two refectories, one for summer, the other for winter. The fountain house (Figs. 186, 187) was frequently treated as a small central building, with glass paintings in the windows similar to those of the cloister. Instead of the common dormitory usually appeared the living cells built for the individual members.

To frequently very extensive groups of structures grew in time the settlements of the great Orders of the Cistercians and Benedictines, provided with estates. In the erection of monastery churches even for the Cistercians, their characteristic form of plan not seldom was changed to the usual arrangement. Magnificent examples of great Cistercian foundations completed in the Gothic period are found at Maulbronn and Bebenhausen in Swabia. The abbey at Maulbronn (pages 311-38) is of unique archaeological worth on account of its rich design and complete preservation. The most important portions of the buildings still belong to the Romanesque period. Through the porch a (paradise; see page 149) of the ground plan in Fig. 986 one enters the three aisled church (dedicated 1178). It terminates in a rectangular choir without apse and with a row of chapels, was originally covered by a horizontal ceiling, but was furnished with net vaults in 1424. By the system of buttresses then introduced, the nave was extended by chapels on the south side. After these building eras followed in 1201 the council hall i, the lay refectory g and the porch (paradise) a (about 1215). About 1225 was built the monks' refectory h and also the south wing of the cloister extending beside the church. (Fig. 40). Between the two refectories lay the kitchen. East the chapter house m, erected beside the transept of the church, led the convensation hall (parlatorium), covered by rich net vaults to the abbot's house o, that was erected in strong wooden construction (1512-1518). The wing of the building denoted by k is a two aisled cellar; f is the picturesque fountain house reproduced in Fig. 187. Outside this inner enclosure lie the farm buildings. The entire monastery is entirely enclosed by strong outer walls. In northern Germany the

abbeys at Lehnin and Chorin also received structures in noble brick Gothic. The Austrian monasteries at Heiligenkreuz, Zwettl and Lilienfeld were enlarged in the Gothic period, and the Bohemian Cistercian abbeys at Goldenkron and Hohenfurt were in great part built. In France among others the abbeys at Fontenay, Fontfroide and Ourscamp belong to the noblest creations of early Gothic, likewise the splendidly located and well fortified Benedictine settlement of Mont-Saint-Michel in Normandy.

The Franciscans and Dominicans in general remained faithful to the simplicity taught by them (in Regensburg, Constance, Esslingen, Basle, Strasburg, Erfurt and Cologne). Their churches for a long time had horizontal ceilings. Somewhat more expressive are the Carthusian designs, whose cloisters already assumed great dimensions with reference to the cell system introduced by them (Carthusian monastery in Nuremberg, now German Museum). When the monasteries were founded or particularly favored by neighboring princes, there also originated richer designs with splendid decorations, as for example at the already mentioned Certosa near Pavia (page 132) and the Dominican monastery at Batalha. (Page 147).

Separate cloisters were further common near the great principal churches of bishops in Spain (page 140) and also in England till the 15 th century, among others in Salisbury, Durham and Gloucester; a view of the richness of the latter is given in Fig. 188. In France, Italy and Germany they were only exceptionally built from the high Gothic period onward. The still existing cathedral cloisters in Laon, Magdeburg, Erfurt and Regensburg are noteworthy monuments in the history of art.

An intermediate position between monastery and palace architecture is taken by the castles of the German Orders of knights. Their finest example is the Marienberg near Danzig. It was begun in the year 1280 and in the 14 th century was rebuilt and materially enlarged, after the seat of the grand master had been transferred there (1309). The different structures are grouped around the rectangular two story cloister, on whose northern side lies the church of S. Maria as the chapter hall. The east wing is occupied by the dormitories, the west wing by the dwellings of the higher knights, and on the south

side are found the living hall and the great refectory. Between 1357 and 1382 was erected the castle of the grand master, after the outer castle had been removed further. In it the mechanics of the Order, who had proved themselves particularly competent masters in the construction of fan and star vaults, and introduced among the forms of northern German brick and Rhenish Gothic many motives from the Norman art in Sicily known to them, produced an artistically prominent work, not only in the internal architecture (Fig. 189), but also in the external subdivision and animation of the wall surfaces. In like manner the castle of Carlstein in Bohemia, erected in 1348-1365 by Matthias of Arras under Charles IV, is a combination of castle and monastery architecture. It must serve as a permanent seat of a collegiate chapter, as a treasury for the jewels of the empire, and at least in part as a residence for the princes of the country. In France originated in the 14th century the stately castle of the Popes at Avignon, intended for similar purposes. More modest were the bishops' palaces, of which considerable remains exist in France and England, (Laon, Sens, Narbonne, Wells) and in the southern countries, which are still partly complete monuments.

Likewise the hospitals are always connected with buildings for divine service. For sanitary reasons they were mostly built near flowing streams on the outskirts of cities, and for their ground plans were selected either the cloister plan, as for example at the hospital at Gues on the Moselle, founded in 1450, or a direct combination of chapel and hall for the sick, like the Heiligengeist hospital at Lübeck, founded in 1276, and the hospital at Frankfort-a-M. The great model structure at Milan (Ospedale Maggiore) already stands on the transition stage to the Italian Renaissance.

C. Gothic Secular Architecture.

In a period when the greatest deeds were seen in the erection of cathedrals aspiring towards heaven, secular architecture could not rise to the high stage of perfection, to which church architecture had soared. Yet also secular architecture, under the increasing participation of the princes, the higher and middle nobility, of the citizens acquiring great wealth, as w

well as the cities and within them the secular assemblies and associations, was favored by the fact, that the practice of the art had passed into the hands of laymen, to record very noteworthy works, in part grand and equal to church architecture.

The most important problems fell to secular architecture in the erection of castles, forts and palaces as the residences of reigning princes and of the nobility. As a rule they reflect the purpose, being first of all directed to strength and capacity for defense in a period affected by wars, and they chiefly assume the character of a fortress, even if they lie within well fortified cities. The plan is at first quite irregular, but later it generally approximates the rectangular form with strong defensive towers at the angles. About from the middle of the 14th century onward the princely residences and castles gradually lose their previously innate character of buildings exclusively for defense and safety. In increasing measure is attention devoted to the requirements for residence. From the treatment of the proud halls and rooms, the Gothic minor arts derive great advantage. The walls were mostly furnished with paneling, that sometimes extended the entire height, and in their treatment with bands and blind tracery were repeated the architectural forms transferred to the minor arts. (Fig. 191). On the ceilings the framework was left entirely visible, or it was furnished with paneling, especially in the smaller rooms. In the larger apartments the ceilings were either treated as vaults, executed in stone with a rich arrangement of ribs, with wooden ceilings having cross strips or on beams, which were very showily treated, particularly in England.

Within essentially more modest limits were restricted the dwellings of the patricians and well to do citizens. In consequence of continued rebuilding, to which the houses were mostly subjected, and the frequently careless laying out of the streets of modern cities, but a relatively small portion of these monuments have remained to us, from which it results that also the well situated merchants and citizens adopted for themselves certain basal traits of the dwellings of the nobles,

In that manner, the city hall as splendid and very
 impressive evidence of the flourishing and increasing prosper-
 ity of the city is in the square area. On the left is cor-
 ner at the beginning of the 19th century. The southeast cor-
 ner of the city hall is a fine architectural structure and already
 the extension frequently presents a fine view of the city.
 (Fig. 10). As a rule, the corner in the ground story con-
 sists for example of a rectangular entrance, in the upper story
 being the great hall, or council hall with the offices of
 the government. Carried to a steady and frequently increasing
 height, the tower was destined for the service of the water-
 and was regarded with particular pride by the citizens; it fre-
 quently formed the characteristic of their city. Just as in-
 teresting are the city houses, the mansions, palaces, shops,
 and mansions, the great mansions, shops, mansions, shops,
 mansions, mansions and other houses (Fig. 11), both as residences
 in the history of civilization, as a measure of the city's
 extent and within them the associations of citizens, resi-
 dence and artistic representations of the city and of their
 history. Another characteristic feature is found in the archi-
 tecture in the fortification of the cities. These could be de-
 tected in the early, the middle and the late, or the early
 for the enclosing walls; therefore the great extent of the city
 and, the narrow alleys and no open squares. The streets were
 on which the design and construction intended for defense and
 also artistic character were employed, in connection with the
 bridges on wide squares and connected by towers which produce
 the charming and picturesque architectural views of the medi-
 val cities. Finally, reference should also be made here to the
 buildings for colleges, which with the advancement in the sci-
 ences attained to particular importance. The universities were
 re chiefly derived from the ecclesiastical colleges. The grow-
 ing of buildings erected for them as a rule followed the
 very plan, which favored a suitable grouping of features
 around the great court.

and also did not like to reject a certain richness, both in their external appearance as well as in their internal equipment.

In great number appear the city halls as splendid and very impressive evidences of the flourishing and increasing strength of the citizen class in the middle ages. On them is correctly shown to what a height secular architecture had already risen at the beginning of the 15th century. The equipment on the exterior frequently presents choice jewels of Gothic art. (Fig. 191). As a rule they contain in the ground story open halls for assembly and mercantile purposes, in the upper story being the great citizens' or council hall with the offices of the government. Carried to a stately and frequently imposing height, the tower was utilized for the service of the watchmen and was regarded with particular pride by the citizens; it frequently formed the characteristic of their city. Just as interesting are the city porticos, the mints, buildings for weighing and measuring, the great merchants' shops, granaries, exchanges, guild and society houses (Fig. 192), both as monuments in the history of civilization, as a measure of what the different cities, and within them the associations of citizens, required as suitable representations of themselves and of their dignity. Another productive field was found by civic architecture in the fortification of the cities. These could be defended the more easily, the smaller their extent, or the shorter the enclosing walls; therefore the great height of the houses, the narrow alleys and no open squares. The stately gates on which the design and construction intended for defense and also artistic ornament were employed, in combination with the bridges on wide arches and protected by towers chiefly produce the charming and picturesque architectural views of the mediaeval cities. Finally reference should also be made here to the buildings for colleges, which with the advancement in the sciences attained to particular importance. The universities were chiefly derived from the ecclesiastical colleges. The group of buildings erected for them as a rule followed the monastery plan, which favored a suitable grouping of lecture and practice halls around the great court.

as in some instances, no special care in security and
 the different architectural details.
 In France the most important secular buildings are the cast-
 les, mostly destroyed. Representative here was the old Louvre,
 which must have been the new building by Francis I. and
 the two ancient ministers, it was a structure enclosed by
 strong external walls well defended by towers, symmetrically
 arranged on an octagonal plan with round arched towers and two
 round towers projecting from the flanks at both sides of the
 middle elevated wings. The new still partially remaining mon-
 uments, such as the royal castle at Versailles, the chateau of
 Fontainebleau and others, and the site of the castle at Blois
 raised other points of view and finally situated in the interior (the
 16th century) exhibit a far more refined treatment than the correspond-
 ing works in Germany. The French castles of the 16th century mostly
 featured a massive body (keep) with strong arched towers (es-
 sence) that was even more closely and freely developed, until
 it was transformed into a court enclosed by internal arcades
 and surrounded by four wings, which was entered through a vault-
 ed gateway; above this gateway was the chapel. Of the city
 walls as no remains left at Fontainebleau with high towers (the
 16th century) and beautiful arched towers, to whose tops entered the
 the French palace of justice in Paris (the 16th century). Otherwise
 the palace of justice at Paris retains considerable, as well
 as the house of the Abbot of Clugny there, distinguished by an
 elegant facade. Of the other richly treated private houses,
 the house of Jacques Coeur in Bourges is a charming example.
 In England the castles and the old English nobles' seats
 present an interesting and varied representation of the style,
 among them being prominent those of Westminster, Hampton Court,
 with frequently a very extended development of the facade and
 the principal attention was always devoted to the great hall,
 often extending to the roof and externally showing in inter-
 nal and ornamental respects, over which the richly carved wood-
 work, belongs to the splendid pieces of Gothic decoration.

As in church architecture, so appear also in secular architecture, in respect to the number, kind, plan and construction of architectural works, many peculiarities, and they characterize the different architectural domains.

In France the most important secular buildings are the castles, mostly destroyed. Representative here was the old Louvre, which must later yield to the new building by Francis I. Judging from ancient miniatures, it was a structure enclosed by strong external walls well defended by towers, symmetrically arranged on an octagonal plan with round angle towers and two round towers projecting from the facade at both sides of the middle elevated window. The few still partially remaining monuments, such as the royal castle at Tarascon, the castles at Poitiers and Pierrefonds, and the wing of the castle at Blois named after Louis XII and richly equipped in the interior (Fig. 193), exhibit a far more refined treatment than the contemporary works in Germany. The French castles of the nobles mostly preferred a massive donjon (keep) with strong angle towers (page 67), that was ever more broadly and freely developed, until it was transformed into a court enclosed by internal arcades and surrounded by four wings, which was entered through a vaulted gateway; above this generally was the chapel. Of the city halls is to be mentioned that at Compeigne with high tower (belfry) and graceful angle turrets, to whose type adheres the late Gothic palace of justice in Rouen. (Fig. 194). Likewise the palace of justice at Paris merits consideration, as well as the house of the Abbot of Cluny there, distinguished by an elegant facade. Of the often richly treated private houses, the house of Jacques Coeur in Bourges is a charming example.

In England the castles and the old English noblemen's seats present an interesting and unified representation of the style, among them being prominent those of Westminster, Hampton Court, (Fig. 195), Eltham and Warwick. They preferred the court plan with frequently a very extended development of the facade; and the principal attention was always devoted to the great hall, often extending to the roof and particularly imposing in internal and ornamental respects, over which the richly carved wooden ceiling, generally treated with hammer-beam trusses of bold span, belongs to the splendid pieces of Gothic decoration. (F

(fig. 141). It has already referred to the world famous
 leaves (page 115). The entire secular architecture of
 the Middle Ages is characterized by a decided accent of the vertical
 tendency for structural lines and a decided accent of the vertical
 calm, the windows terminating in lancet, decorated, and later
 in Tudor arches with rollings like stone tracery, the crowning
 battlements, showing bay windows, and the splendid forms of
 gateways, by the broad and spacious halls in the interior with
 a banded architecture in the wall panelings, the main subdivi-

In Germany the Albrechtsburg in Meissen, mentioned in a note
 its location above the Elbe and protected by massive towers, en-
 closed in 1471-1475 by master Arnold of Westphalia, is named as
 the best example of the late medieval German princes' seats.
 It is already tending to a more regular and academic design. The k
 room is accessible by a very richly decorated stairway tower and is
 furnished with a prominent light by windows ending in a pediment
 system. The rooms were covered by a rich cellular vault of sta-
 bular form. (page 117).

In France the Alençon castle, built on a hill as a defen-
 sive fortress and still in good condition, and also in
 the 14th century, which approximates the design of the k
 name of the French nobles.

Since Germany has no more of castle and fortress to
 show in the interior of Europe, rebuilt after the fire of 1800,
 whose princely structure is shown by magnificent decorations
 in wood, and in the castle at Bamberg. That still contains its
 castle towers, hall, and the castle documents in the fine
 province, dating even from the 13th century, and restored in
 the 19th century. Besides numerous castles remain from the
 middle period in Germany and Austria, even in its great part
 only in ruins, in farthest numbers in the Rhine province, the
 Palatinate and in Bohemia.

To the noblest creations of German secular architecture also
 belong the city halls. A very impressive monument of this ki-
 nd is the town hall in the city of Cologne, which was built in
 the 14th century and is one of the most beautiful examples of
 the late medieval style in Germany.

(Fig. 141). We have already referred to the world famous colleges (page 115). The entire secular architecture of England bears an entirely native and distinguished stamp by the preference for straight lines and a decided accenting of the verticalism, the windows terminating in lancet, depressed, and later in Tudor arches with mullions like stone tracery, the crowning battlements, charming bay windows, and the splendid forms of gateways, by the broad and spacious halls in the interiors with banded architecture in the wall panelings, the much subdivided vaults or the rich wooden ceilings.

In Germany the Albrechtsburg in Meissen, enthroned in a noble location above the Elbe and protected by massive towers, erected in 1471-1485 by master Arnold of Westphalia, is indeed the best example of the late mediæval German princes' seats, already tending to a more regular and spacious design. The keep is accessible by a very picturesque stairway tower and is furnished with abundant light by windows ending in shouldered arches. Its rooms were covered by high cellular vaults of stalactite form. (Page 87).

In Hungary the Alt-Sohler castle, built on a hill as a defiant fortress about 1350 is yet in good condition, and also in Switzerland castle Staufis (canton Freiburg), likewise built in the 14th century, which approximates the designs of the keeps of the French models.

Middle Germany has important works of castle architecture to show in the fortress of Coburg, rebuilt after the fire of 1500, whose princely structure is adorned by magnificent decorations in wood, and in the castle at Marburg, that still contains its stately knights' hall, and the castle Stolzenfels in the Rhine province, dating even from the 13th century, and restored in the 19th century. Besides numerous castles remain from the Gothic period in Germany and Austria, even if in great part only in ruins, in largest numbers in the Rhine provinces, the Tyrol and in Bohemia.

To the noblest creations of German secular architecture also belong the city halls. A very impressive monument of this kind stands in a corner of the market place at Brunswick with two wings at right angles to each other, which open toward the marketplace with pointed arcades in the lower story, and in t

the upper with rich tracery windows crowned by tracery gables. Of the old city hall at Nuremberg the great hall still exists. In Frankfort-a-M. the Römer was erected after 1405 with a great imperial hall, whose ceiling dates from the year 1612. The city halls at Breslau, Prague, Ulm, Basle and Cologne are works of the late Gothic period. In contrast to these cut stone buildings, the northern brick Gothic is represented by the city halls in Lübeck, Brandenburg, Tangermünde, Königsburg-I. N. (Fig. 196), Bremen, Hanover and Stralsund. The latter mostly have architectural portions from the most different building periods. Their external architecture lays chief stress on the development of richly subdivided gables adorned by slender turrets. Even with simpler means and in half timber construction, the city halls in the smaller cities were frequently treated in a very pleasing manner. (Alsfeld, Duderstadt).

Notable examples of buildings erected for commercial purposes are given by the Artushof at Danzig (built 1477-1481), erected as an exchange, and the Gürzenich in Cologne (after 1441). The Welsche Hof in Kuttenberg (Bohemia) was begun in the 14th century and is one of the mediaeval mints. Erfurt possesses an interesting monument in its old university, dating from the beginning of the 16th century. In the southwest provinces of Austria on the great structures intended for commerce and traffic, by the numerous trade relations with Venice, powerful influences of Venetian art frequently appeared, for example on the corn-measuring house at Bruck on the Mur. Likewise the citizen's house in cut stone, of the Gothic period frequently exhibits a richer treatment in massive stone construction, like the Nassauer house at Nuremberg and the Krafft house there (Fig. 197) of about 1510, the "stone house" at Frankfort.A.M. (after 1464), the etzweiler house in Cologne, also belonging to the 15th century, and numerous dwellings in Münster-i-W. Brick buildings of this kind are still found in great numbers in the Baltic provinces, in Saxony, Hanover and Brunswick. In southern Germany as well as in the Tyrol and Bohemia, the bay windows (termed "little choir" in Nuremberg), form a favorite and extremely impressive ornament of the facade. (Fig. 198).-- But in general for all Germany and all middle Europe continues

the half timber construction with stories corbelled out, carved timbers and purlins, and ornamented window enclosures compose the chiefly apparent forms of the citizen's house. (Fig. 199). In its lower story as a rule were located the rooms for business (shops, warehouses, workshops etc.), in the upper stories being the dwelling. The stairways permitting access to the stories enjoyed a soon increasing consideration. Particularly favored were winding stairs, that were often treated in a structurally spirited and artistic manner.

That likewise the buildings for public purposes erected by mediaeval architects attained high technical safety and great utility, and frequently received a monumental treatment, is shown on the white bridge at Raudnitz in Bohemia, built after 1333 by a master William of Avignon, called from France, and on the grand Carls bridge in Prague erected by Peter Parler. (Page 126). Here stands likewise the Altstadt bridge tower and in its vicinity the similarly treated powder tower, begun in 1475; they are splendid representatives of these imposing gateway towers, which remain in extremely great numbers in all Germany, particularly in its brick regions.

In the Netherlands, particularly in their southern portion, secular architecture reached a development, that stands equal to that of church architecture. In no other country has the prosperity and strength of the citizen class found so high a monumental expression as there. In the first rank stand the city halls. As their greatest example appears the city hall at Brussels, founded in the year 1402, a square structure with sides of 196.9 ft. and a tower 334.6 ft. high, which has the name of belfry in the Netherlands. This building was the model for the city hall at Audenarde, erected in 1525-1529. In Louvain Matthias of Layens built the city hall between 1447-1463 in moderate dimensions and without a main tower, but with a richness of architecture and sculpture previously unknown. In Bruges originated in 1376-1387 the city hall, also in modest dimensions. (Fig. 200). The mighty hall tower there even belongs to the 13th century (1283), and rises above the lower structure crowned by battlements to a height of 352.7 ft. Grand is also the city hall at Ghent, whose north building dates from the Gothic period, was begun by Dominicus von Waghemakere

and completed with the most luxuriant Gothic decoration.

But the wealthy commercial cities in Flanders also frequently erected as the most important staple warehouses for the goods brought by the seafaring people from foreign parts of the world vast and often splendidly equipped structures for commercial purposes. The cloth hall at Ypres (now city hall) with a length of facade of 436.7 ft. and a belfry 229.7 ft. high. The cloth halls at Louvain and at Mechlin belong to the 14 th, and that at Ghent to the first half of the 15 th century. With these public buildings compete numerous guild and society halls and even citizen's dwellings as eloquent witnesses of the unbounded wealth of a splendor-loving citizen class exerting itself in great artistic works.

In Italy the development of the Gothic secular architecture does not exhibit that unified appearance, that is generally presented in other countries. The castles erected by the Hohenstaufens in Apulia and Sicily, as for example the castle del Monte and the castle at Buri and that at Gioia are characterized chiefly by their lofty external walls and massive angle towers rising from polygonal outlines as defiant fortresses. The castle Nuovo in Naples, built for the kings of the French house of Anjou, tend more to French models. A tendency toward the picturesque by their grouping and external treatment is shown by the castles in upper Italy at Pavia, Milan and Ferrara. (Fig. 201). The principal domain of Gothic secular architecture beyond the Alps lies in middle and upper Italy, and there chiefly in the independent cities with great power, where the city houses and private palaces compete with each other in beauty. The nobility already from the 11 th century had located its chief residences in the cities, and the ruling families saw clearly then, that if by their active powers they succeeded to the government, it was essential to glorify their strength and to quiet the mass of the people by the erection of imposing palaces and public buildings.

The palaces of the nobles in the cities no longer as in the antique house have the dwelling on the ground floor, but in the first story. The walls of the lower story mostly remain closed or receive only a few small windows, arranged for defe-

defense. thereby the entrances, portals and stairs acquired increasing importance. Battlements for defense crown the facade walls above the slightly projecting arched cornices. Generally corbelling of stories is transferred from wooden construction to stone, so that the walls of the upper stories rest on arches or stone corbels. In Florence the Gothic palaces always produce the impression of fortified stone houses. They have a regular and rectangular ground plan about a small court, surrounded on one or more sides by porticos; the arches that support the heavy walls of the upper stories rise on single and mostly octagonal piers with modest foliage capitals. The externally dry Bargello or palace del Podesta was begun in 1225, and has an extremely picturesque court. On the massive palace Vecchio, rich in historical recollections, erected in 1299-1301 by the cathedral architect Arnolfo, the seat of the signory, i.e. the city government, the fanciful form of the tower is striking. Of the remaining Gothic palaces the palace Quaratesi is still entirely preserved. A noble hall structure was erected in the year 1339 as a grain exchange, but was later transformed into the church Or S. Michele. The loggia del Bigallo (1352-1358; Fig. 202) erected on the cathedral square as a graceful portico for charitable purposes and the proud loggia dei Lanzi built by A. Orcagna (1376-1382) beside the palace Vecchio, in which the signory performed their solemn official transactions, show correctly how strongly the antique tendencies in architecture reacted in the Tuscan Gothic. Likewise on the palace del Comune at Perugia (1340), distinguished by its magnificent portal, is this plainly visible. (Fig. 203). In Piacenza is to be emphasized the stately palace Comunale (begun 1281), opening in its lower story by a massive portico with piers. In Bologna the loggia de' Mercanti, built for commercial traffic in 1382-1384, is counted among the noblest creations of brick Gothic. Extremely rich in secular Gothic buildings is old Siena, where the stately palace Pubblico (1289-1305) with its boldly ascending tower (Fig. 204) and the richly treated palace Buonsignori deserve particular consideration.

A quite independent position is occupied by the old commercial city of Venice. The Venetian palaces do not have that stern appearance of fortified family castles, as in Florence. In

them is expressed the love of splendor of a rich people inclined to a gay enjoyment of life, versed in the world, and which was called forth by an acquaintance with oriental products. The palaces are always symmetrically arranged on a rectangular ground area, have the housekeeping rooms in the lower story, in the upper being a hall occupying the entire depth of the house, which in a certain way affords a substitute for the court, lacking on account of the soil conditions of the city of the lagoons. Their facades are preferably turned toward the grand canal. The continuous series of grouped windows, that light the great hall, and in whose treatment is particularly to be seen rich tracery, produce in combination with the balconies and loggias an extremely prominent ornamentation. (Ca d'Oro, Palaces Pisani (Fig. 205), Giustiani, Foscari). The most magnificent architectural monument of the Venetian Gothic is the Doge's palace, combining at the same time the residence of the prince and the government house. (Fig. 206). The mighty building, commenced after 1310 and first completed in the 15th and 16th centuries, encloses a court treated in the 16th century in the most elegant manner, and it has toward the place S. Marco and the canal two imposing and showy facades. The two lower stories open in airy and graceful arcades, on which rest the external walls of the upper story, rising high, entirely undivided and only opened by some colossal pointed windows, and faced with marble tiles in geometrical patterns - a remarkable reversal of the general architectural principles, since the opening of the walls should occur in the upper stories on account of the heavy load -- but the whole produces an architectural form of wonderful and most highly majestic appearance.

In Spain in the royal palace at Olite (Navarre) are retained the basal principles determinative in French castle architecture. As a particularly rich work appears the palace of the duke of Infantado at Guadalajara (1462) with splendid facade adorned by bay windows and luxuriously treated court, in which Moorish elements are interwoven with Gothic forms. Oriental tendencies make themselves apparent in Spanish castle architecture likewise in the mode of fortification, the subdivision of

the external walls and the architectural treatment, as especially evident on the castle de Coca near Segovia (15 th century; Fig. 207). On the Casa de la Deputacion in Barcelona, begun 1485, that encloses an elegant court, influences from southern France are undeniable. In Valencia (after 1498) Pedro Compte, the architect of the cathedral there, erected the three aisled hall structure of Casa Lonja (exchange) there, which with its magnificent treatment of the portal and the fanciful windows, twisted columns and rich net vaults belongs to the most important works of late Gothic secular architecture.

III. Architecture of the Renaissance.

General Basis.

With the end of the 13th century the Gothic style had reached the limit of its development in France, the land of its origin. Thenceforth several tendencies made themselves felt within it, which opposed its nature, loosened its consistent orderliness and effected a complete dislocation of the principles, from which it originated. The Gothic had penetrated extremely deep and to the innermost marrow of the people. But the absolute rule of tradition required by it could only be maintained as long as this was entirely filled with the mediaeval spirit; it must fail at the epoch, in which different conceptions of the world and its phenomena appeared and men strove for new ideals. We could observe in the entire course of late Gothic, how with the influence of the common and practical sense of the citizens in church architecture and in a still higher degree in secular architecture, the respect for the strict principles of the style gradually disappeared from the minds of the people. And when finally new and real requirements entered the foreground, then the Gothic style, once carried to such a rich climax, showed itself unfruitful, entirely exhausted and capable of no further development. Thus appears to us in the entire 15th century, even where Gothic remained in its supremacy in France, Spain and Germany, in spite of numerous flowers still rising from the withering branches, there is yet merely a continued life in its deeply rooted trunk, a final wasting of the remains of the strength within it, a slow dying of mediaeval art.

/6/ At the same time proceeded from Italy the light of a new life. For after a long period of decadence, in the second half of the 13th century, there came a time of florescence for the sunny land south of the Alps, in the course of which the sciences in combination with the formative arts attained to a splendid development. On its soil, always swept by a slight wind of pagan antiquity, the Gothic middle ages had but partially prevailed in certain definite regions, and even there frequently only by giving up its most important principles. There also broke out fully then that mighty movement, which overthrew

the entire mediaeval system and introduced a new and completely changed period.

If one seeks the impelling forces of this movement, we first find the feeling for nature again aroused in all the nations of the West and even becoming stronger after the middle of the 13th century, which stood in abrupt contrast to the gloomy and world-renouncing spirit of the middle ages. After Petrarch (1304-1374) had described the beauty of the world with such glowing inspiration, the joy in nature became general. A previously unknown impulse toward a knowledge of its phenomena and their causes, a formal thirst for knowledge possessed all minds. Opposed to it the old scholasticism sank into a nonentity.

Extremely forcible in the evolution of the conditions of the time was further the effect of the unusual importance, that individualism secured in the people generally, indeed both in intellectual and political, as well as in artistic domains. Great and powerful personalities, coryphees, such as no second period of the history of civilization and of the minds of mankind has to show in such serried ranks, appeared on the scene. By them were broken the restraining fetters of the rigid mediaeval compulsory dogmas. Free activity in intellectual and political life was the first and most important requirement, with which the largest classes of the people agreed. A democratic and entirely realistic basal tendency dominated the multitude. It was unavoidable, that the Christian idea thereby lost its importance, and the influence of the church diminished. In increasing measure the chief attention of public life was devoted to secular interests.

There the thoughts of classic antiquity, chiefly produced by learned study, found willing acceptance and brought a new impulse, highly characteristic of the change in views, very important for the further development of the conditions of the time. Men saw in the peoples of antiquity, whose works expressed such a serene and secular character, frequently the ideal of the most perfect earthly felicity; their literature, mythology and art continually enjoyed a warmer reception. Comparisons were drawn between the architecture of the ancients and that of the

middle ages, and was finally reached the conclusion, after re-
considering the high formal superiority of the former, that this
was even the unattained and the undying ideal of artistic ex-
pression, therefore the revival of the antique, which contained
the most dignified and most elevated forms of art, was what a
great everywhere strive for, forming the highest aim for a
all systems of the later time. -- In the second half of the

14th century Petrarch and Boccaccio, the greatest poets of the
Italy's best period, regarded as first and most important the
recovery of the antique. This idea acted on the artists like
a powerful stimulus. It was the first step to the

iv it became a fact. Thus after centuries of artistic decay
the first signs of the fallen Roman empire and the Gothic ele-
ments came from the North and not outside of assimilation in
Italy, which came to the conclusion, exceedingly important to
the history of civilization, to adopt the Roman architectural
forms as a basis of expansion for the new representatives in the
intellectual and material domain, created from these formerly
unknown. It was an experience manifested in the history of the
world, that it was awakened into new life after a long sleep
and for a thousand years.

The new epoch in art and science thereby introduced, already
in the 13th century had received the name of Renaissance (re-
on the Italian Renaissance = rebirth), although this appella-
tion is nowise exhaustive the designation. For the antique is
not the dominating but the controlling factor. It was also born
ally in the new movement not created as a "rebirth", in the 15th
century conceived, but as the transition to a new view of the
world. It was an entirely new spirit derived from naturalism

and individualism, renouncing the middle ages, and which saw
in the versatile balanced beauty and rationality of classical art
the ideal of a harmonious and humane conception of life.
It regarded the language and literature as an indispensable
source for the ethical and intellectual education of the human
race, and founded that humanism, on which rests all modern civ-
ilization.

Generally the artists conceived a revival of the antique, a
entirely new from the realm of architecture. With greater

middle ages, and men finally reached the conclusion, after recognizing the high formal superiority of the former, that this was ever the unattained and the undying ideal of artistic expression; therefore the revival of the antique, which contained the most dignified and most elevated forms of all, was what a art must everywhere strive for, forming the highest aim for a all artists of the later time. -- In the second half of the 14 th century Petrarch and Boccaccio, the greatest poets of Italy's best period, demanded as first and most important the a adhesion to the antique. This idea acted on the artists like a greater illumination. In the first half of the 15 th century it became a fact. Thus after centuries of strife between the traditions of the fallen Roman empire and the Gothic elements coming from the North and not capable of assimilation in Italy, men came to the conclusion, exceedingly important to t the history of civilization, to adopt the Roman architectural forms as a means of expression for the new requirements in the intellectual and material domain, changed from those formerly common. It was an occurrence unequaled in the history of the world, that an art was awakened into new life after being dropped for a thousand years.

The new epoch in art and science thereby introduced, already in the 16 th century had received the name of Renaissance (from the Italian rinascimento = rebirth), although this appellation in nowise exhausts the signification. For the antique is not the deciding but the concurring factor. It was also actually in the new movement not treated as a "rebirth" in the sense here conceived, but as the transition to a new view of the world. It was an entirely new spirit derived from naturalism and individualism, renouncing the middle ages, and which saw in the versatile balanced beauty and maturity of classical antiquity the ideal of a harmonious and humane conception of life, regarded its language and literature as an inexhaustible source for the ethical and intellectual education of the human race, and founded that humanism, on which rests all modern civilization.

Certainly the artists conceived a revival of the antique, e entirely aside from the realm of architecture. With greater

and were studied the nature of influence from the classical
 on were found but few models corresponding to the architecture
 of interiors of the new period. The art of interiors had been
 while been over by the elevated school of the middle ages,
 in whose architectural system and technical methods men had
 learned to master the most difficult problems. The attitude
 of interior design was different from that of the classical
 of interiors, then for the form of interiors. Yet in
 regard to these, they were limited to the lower orders, the
 and structure of individual studies, and the foundation of the
 the (see volume I), still remaining at that time. Men could
 not enter the system on which these were based, but only the
 method of treating the form of the details. Even in the over-
 vision of the situation the Renaissance pursued its own course,
 likewise one not previously one protected by the middle ages.
 the Gothic had developed the structural system exclusively in
 modern architecture in the system of interiors for conven-
 tant installation or for secular domestic purposes, it partic-
 ularly only in very slight manner. There the Renaissance ex-
 ceeded in order to create a scientific procedure for the "art
 of the mode of life." It created an interior style, whose con-
 ditions for the beauty of an interior and of its manner be-
 as an ideal principle of construction or permanent value. Its
 questions of interior design created by the new spirit of the time
 changed the Renaissance in the detail form of the antique; it
 created in the interior and the sense of classical archi-
 tecture in its evolution.

It was unavoidable under these circumstances, that the archi-
 tectural treatment should rise to a technical and aesthetic
 standard, particularly in the hands of the important masters,
 while the different masters do not exhaust the functions asso-
 ciated with them, in the manner which we have learned to recognize
 in a study of the Greek columns and their orders (volume I,
 pages 65-75). Only in the studio, in which the Roman artists
 chiefly learned to recognize the attitude (on the monuments of
 the Roman Empire) and the technical methods of the Roman
 and masters had already found that unity, that was to

spirit were studied the remains of buildings from the classical period, then preserved in abundant measure. However in them were found but few models corresponding to the architectural problems of the new period. The art of interiors had meanwhile been gone over by the elevated school of the middle ages, by whose architectural system and technical methods men had learned to master the most difficult problems. The antique offered to the Renaissance suitable precedents, less for the treatment of interiors, than for the forms of facades. Yet in regard to these, they were limited to the Roman theatre, the architecture of triumphal arches, and the Septizonium of Severus (see volume 1), still remaining at that time. Men could not employ the system on which these were based, but only the method of treating the forms of the details. Even in the creation of the interiors the Renaissance pursued its own course, likewise one not previously one indicated by the middle ages. The Gothic had developed its structural system exclusively in church architecture; in the treatment of interiors for convenient inhabitation or for secular festal receptions, it participated only in very slight measure. There the Renaissance appeared in order to propose a splendid programme for the "art of the mode of life." It created an internal style, whose conditions for the beauty of an interior and of its members became an ideal principle of construction of permanent value. Its creations of interiors produced by the new spirit of the time clothed the Renaissance in the detail forms of the antique; therein lies the importance and the share of classical architecture in its evolution.

It was unavoidable under these circumstances, that the architectural treatment should rise to a harmonious and perfect organism, particularly in the hands of few important masters, while the different members do not express the functions served by them, in the manner which we have learned to recognize in a study of the Grecian columns and their orders (volume 1, pages 62-75). Only in the stadium, in which the Roman artists chiefly learned to recognize the antique (on the monuments of the Alexandrine period and that of Roman art), the architectural members had already lost that purity, that was peculiar to

as a historical phenomenon, and in the history of the human mind.

But the history of the Renaissance is not only a history of the evolution of classical and humanistic ideas, at least not in its early and best periods; they absorbed the elements, they absorbed of their own free will the new, and then assimilated them. Their work is a new creation. With the expression of the human and the spirit and the new direct experience of the individual, they appeared as if directly opposed to the religious, even in the art directed towards the beauty of form, and therefore the art of the Renaissance no longer identified as in antiquity in a single tendency of the spirit; there arose different and opposite, which were often carried on in their resistance for a century by prominent learned masters. Therefore the history of art became a history of artists; the personal element of time in antiquity reappeared in the foreground.

For the free evolution of the great individuality of artists at the end of the Middle Ages, Italy and Germany offered the most fertile soil; therefore in those countries the Renaissance began the richest first; France, England and Spain followed by their strong centralization a less favorable soil for the evolution of personal peculiarities than Germany, where the political conditions set less restricted bounds to the occurrence and development of artistic individuality. But the main land of the Renaissance is Italy. In there appears as a direct expression of the spirit of the renaissance in the form of the anti-thesis, which was never entirely suppressed on Italian soil and even conquered the Gothic, when it seemed time to subordinate its best principles; it rose above to new artistic elevation, which lent to it a national importance for the entire architectural art of modern times.

1. Architecture of the Renaissance in Italy.

1. Historical evolution.

Italian Renaissance - architecture appeared with a great artistic impulse in the 15th century, its development was rapid and the cause of the cathedral of Florence. It was no accident that

them in the best Gothic period; they had become ductile and flexible and thus far more suitable for adoption in Renaissance architecture, than in the severe forms of the Grecian conception.

But the masters of the Renaissance did not fall into direct imitation of classical architectural forms, at least not in the early and best periods; they adopted the elements, transformed by their own feeling for style, and then applied them to their works in a new conception. With the expressed joy in nature and the strong and frequently direct accenting of the individual, they appeared as if directly opposed to the antique, even in the aim directed toward pure beauty of form. And therefore the art of the Renaissance no longer flourished as in antiquity in a unified tendency of the style; there arose different art currents, which were often carried on in their magnitude for a century by prominent leading masters. Thereby the history of art became a history of artists; the personal worship of fame in antiquity reappeared in the foreground.

For the free evolution of the great individuality of artists at the end of the middle ages, Italy and Germany offered the widest space; therefore in those countries the Renaissance bore the richest fruits; France, England and Spain afforded by their strong centralization a less favorable soil for the evolution of personal peculiarities than Germany, where the political subdivision set less restricted bounds to the occurrence and continuance of artistic individuality. But the main land of the Renaissance is Italy. It there appears as a direct expression of the spirit of the people in the forms of the antique, which was never entirely suppressed on Italian soil and even conquered the Gothic, when it compelled this to subordinate its basal principles; it rose there to that artistic elevation, which lent to it a universal importance for the entire architectural art of succeeding times.

1. Architecture of the Renaissance in Italy.

1. Historical Evolution.

Italian Renaissance architecture appeared with a great artistic work of the first rank, with the design and erection of the dome of the cathedral of Florence. It was no accident th-

over France, the country had been divided on the basis of the distance of the Parisian. There at the beginning of the 19th century the interest in art had been divided into all classes of the population, however by a defined group of it, that elevated political and social conditions. The terms of the system attracted popular attention; in the full, especially, these took part in the great action of the intellectual and artistic of that time. In the artistic sense of the 19th century, especially receptive for novelties, was aroused a sense of the past and a new, an elevated feeling, that pressed for a new artistic sense. The opportunity for this was a new artistic sense. (See page 100). Already during the 18th century the artistic class had begun to feel in its members an artistic interest; even when were new and broader architectural ideas brought forward, completely new artistic principles were established, and conditions of artistic and artistic with many members were found with the common to produce something new. In the year 1800 the artistic had to be progressed, that the artistic of the 19th century had included in his design, even if in more modest dimensions. But the variety of an interior of space (see page 100) answered to the members of the 19th century as a standard, for which some among them could decide. Then artistic principles, a refined, learned and elevated art, an artistic previously chiefly active as an interior, artistic and scientific, presented a dealer with artistic, on the basis of which he was arranged master of the artistic of the 19th century, and was arranged with the exhibition of the dome according to his ideas. After 1817 French architectural and artistic through architectural means of artistic structures; in 1830 he commenced the building on the artistic and artistic dome, indeed as a classical vault with strong lines from the angles of the polygon, with thin vault shells only between these as the internal dome, and an external dome protecting dome built in the same manner, that was connected with the internal dome by intermediate spaces. In the year 1840 was the dome completed in its most essential part.

that Florence, the beautiful Tuscan capital on the Arno should become the birthplace of the Renaissance. There at the beginning of the 15 th century the interest in art had penetrated into all classes of the population, favored by a refined course of life, that elevated political and social conditions. The works of the artists attracted popular attention; in the full entirety, these took part in the high ascent of the intellectual culture of that time. In the animated sense of the Florentines, particularly receptive for novelties, was aroused a sense of their own power, an elevated feeling, that pressed forward to great artistic deeds. The opportunity for this was presented to them by the cathedral. (See page 136). Already during the entire 14 th century the citizen class had busied itself in its progress in an unknown measure; ever again were new and grander architectural ideas brought forward, competitions among artists were established, and commissions of architects and painters with many members were formed with the command to undertake something unknown. In the year 1420 the building had so far progressed, that ~~the erection of the dome~~ could begin, which Arnolfo had included in his design, even if in much more modest dimensions. But the vaulting of an interior of such a colossal span (137.8 ft.) appeared to the masters of the cathedral as a hazard, for which none among them could decide. Then Filippo Brunelleschi, a gifted, learned and many-sided man, an artist previously chiefly active as an engineer, goldsmith and sculptor, presented a design with statical explanations, on the basis of which he was appointed master of the building of the Cathedral, and was entrusted with the execution of the dome according to his plans. After 1417 Brunelleschi had undertaken thorough preparatory studies of antique structures; in 1420 he commenced the vaulting on the already existing drum, indeed as a cloister vault with strong ribs rising from the angles of the polygon, with thin vault shells built between these as the internal dome, and an external higher protecting dome built in the same manner, that was connected with the internal dome by intermediate arches. In the year 1434 was the dome completed in its most essential parts by the addition of the heavy crowning ring to receive the ribs of

the vault. At the same time was adopted the master's model for the lantern, a small addition loading the upper ring and admitting a high side light. Its erection first commenced in 1445, shortly before the master's death; it was completed in 1467. (Fig. 208).

The cathedral dome of Florence has less importance as a style-forming monument, than as the earliest work of that master, of high importance chiefly in structural respects, which as the first after a zealous study of the ruins of Rome was called into life with the aim for the architectural forms of antiquity. Brunelleschi was there entirely restricted to the Gothic substructure; its dome stands organically on that. And yet the same breathes the spirit of the new time. Therefore it also became the actual creative building of the Renaissance.

1/3 The succeeding evolution of the Italian Renaissance architecture was completed in three periods, which exhibit the growth, flourishing, and the decadence of the style.

1. The early Renaissance from 1420 to 1500. * This is the period of transition and of search for the new forms of the style. Its chief region is Florence, where beside and after Brunelleschi, masters of genius, such as Michelozzo, Alberti, Rossellino, Cronaca and others developed an extremely fruitful activity. We shall learn to know their works later. They present to us particularly in the first period tentative and still uncertain proportions of the architectural masses after antique principles, and in the treatment of details a very reserved tendency toward the architecture of the ancients without any deeper insight into the conditions on which it was based, and especially without an understanding of the more refined relations of the members to each other. On the other hand there is in the rich and naturalistic decoration a freshness and charm, which give to the works of the early Renaissance a peculiar and almost youthful grace.

* The Italians designate this period as "Quattrocento", i.e. the time from 1400 to 1500, and the high and late Renaissance, as "Cinquecento", i.e., the time from 1500 to 1600.

2. The high Renaissance from 1500 to 1540. The art of the 15th century advanced with colossal strides; with the beginning of the 16th it entered a new phase. It had then learned

now to solve the most difficult problems, to perfect technical
methods to the extreme, to make the classical treatment of fo-
rms its own, and to draw all arts in the richest measure into
the service of architecture. The impulsive pressure of this
period to the entire period was contemporary with a mighty
tendency toward greatness. In the entire architecture was ex-
pressed a feeling of the masters and architects directed to
the monumental.

With the entrance of the first Renaissance the center of grav-
ity of artistic evolution was transferred to Rome. After the
middle of the 15th century the eternal city had continually
won greater importance, and had drawn leading artists to it.
15. After the powerful and art-inspired Pope Julius II had
enriched the choir of St. Peter (1505), he called the greatest
masters of the new art to his court, and then arose on the ru-
ins of the ancient world a magnificent city, in which was vir-
tually renewed the former splendor of the Roman emperors. Italy
entered on an unequalled climax, into its golden age. Artists
with inconceivable talent and creative power developed before
the astonished world their epoch-making activities. This was
the age of Bramante, Raphael, and Michelangelo. Both in palat-
es as well as in church architecture did they complete the ex-
tremest works. - Not long, scarcely a half century did this o-
climax of the Renaissance last. Already before the end of the
first half of the 16th century, it passed over into:-

3. Late Renaissance. This falls in the time from 1540 to
1600. The freedom in which the great artist nations could re-
or and the material and brought them into a harmonious organi-
sm, was a barrier for their less important successors in a cer-
tain, last restricted from the architects the extraordinary and
(as unusual); they inclined toward that intended betweenness of
the artistic means of expression, in which we recognize the
first symptoms of the Baroque style. But there still prevail-
ed, at least in general and for the next period, the high ser-
as of beauty derived from the works of the great masters; in
architects last group of masters with refined feeling to beautify
and fame, who recognized the sources of beauty in the internal

how to solve the most difficult problems, to perfect technical methods to the extreme, to make the classical treatment of forms its own, and to dray all arts in the richest measure into the service of architecture. The impulsive pressure of life peculiar to the entire period was contemporary with a mighty tendency toward greatness. In the entire architecture was expressed a feeling of the masters and architects directed to the monumental.

With the entrance of the high Renaissance the centre of gravity of artistic evolution was transferred to Rome. After the middle of the 15 th century the eternal city had continually won greater importance, and had drawn leading artists to itself. After the powerful and art-inspired Pope Julius II had ascended the chair of S. Peter (1503), he called the greatest masters of the new art to his court, and then arose on the ruins of the ancient world a magnificent city, in which was visibly renewed the former splendor of the Roman emperors. Italy entered on an unequaled climax, into its golden age. Artists with incomparable gifts and creative power developed before the astonished world their epoch-making activities. This was the age of Bramante, Raphael, and Michelangelo. Both in palace as well as in church architecture did they complete the grandest works. - - Not long, scarcely a half century did this climax of the Renaissance last. Already before the end of the first half of the 16 th century, it passed over into:--

3. Late Renaissance. This falls in the time from 1540 to 1580. The freedom in which the great artist natures could move, which in a directly unlimited manner dominated the interior and the material and brought them into a harmonious organism, was a danger for their less important successors in a period, that required from the architects the extraordinary and the unusual; they inclined toward that intended heightening of the artistic means of expression, in which we recognize the first symptoms of the Barocco style. But there still prevailed, at least in general and for the next period, the high sense of beauty derived from the works of the great Bramante; it entitles that group of masters with refined feeling to permanent fame, who recognized the sources of beauty in the internal

...to the treatment of the forms in definite proportions, since they sought to investigate these and thus create principles of style, that in fact are in writing style to be esteemed as ever applicable standards of genuine artistic treatment. These are the great masters, Vitruvius, Serlio and Palladio, who then devoted their rich abilities, sometimes in Rome and in the more famous cities of middle and lower Italy. Since the 16th century was determined in a still higher degree than previously the architectural treatment of the column. They are also situated and critical in their works, even if the line of artistic feeling then inevitably less than the calculating and constructive understanding. The artistic stands nearer than their first predecessors. With great earnestness the architectural sense of the Renaissance is seen in the 16th century, and by the 17th century and by orders, and from the results were established in a certain way for architectural dimensions of all sorts. Their architecture assumed a predominantly decorative character. Vitruvius' works (see volume I, page 124) were received as thorough study. More than previously was the attention devoted to the architectural treatment. The character of decorative work, which played a part in the early style in the 16th century, was now more and more pronounced. Indeed, even entered in a haphazard but subordinate relation, instead of being the basis, now played a role, and almost indifferent reserve. * Thus the building received an indeed simplified, particularly expressed in palace architecture and there presents a reflection of that grandeur (grandeur), that proceeded from truth, and dominated in increasing measure the society there. About the end of the century the detail sinks to an entirely capriciously treated portion of the whole; the transition to the Baroque style is completed. * * *

* In the decadence of the enjoyment in ornamental decoration and the tendency to exaggerate the detail in the treatment of the building. The decorative element becomes a mere ornament, and the building is no longer a living organism, but a mere shell, a mere play of lines and colors.

truth of the architectural works and of their organism, and in regard to the treatment of the forms in definite proportions, since they sought to investigate these and thus create principles of style, that in fact and in writing should be esteemed as ever applicable standards of genuine artistic treatment. These are the great theorists, Vignola, Serlio and Palladio, who then developed their rich abilities, sometimes in Rome and in the more important cities of middle and upper Italy. Likewise for these was determined in a still higher degree than previously the spaciousness required by the owners. They are also spirited and original in their works, even if the free artistic feeling then prevails less than the calculating and combining understanding. The antique stands nearer them than their predecessors. With great earnestness the architectural works of the ancients were by them investigated anew, measured by stories and by orders, and from the results were established in a certain way for proportional dimensions of all separate members. Thereby architecture assumed a predominating academic character. Vitruvius' works (see volume 1, page 134) again received a thorough study. More than previously was the attention devoted to the architectural treatment. The ornamental decorative work, which played a part in the early style nearly equal to the structural, but which in the high Renaissance appeared in a harmonious but subordinate relation, indeed retained its purity, but showed a cool and almost indifferent reserve. * Thus the buildings received an indeed dignified, but frequently stiff and aristocratic appearance, that is particularly expressed in palace architecture and there presents a reflection of that grandeur (grandezza), that proceeded from Spain, and dominated in increasing measure the society there. About the end of the century the detail sinks to an entirely capriciously treated portion of the whole; the transition to the Barocco style is completed. * *

** In the decadence of the enjoyment in ornamental decorative work is expressed a lessening of the national in the architecture of the Renaissance. The humanistic movement originating with it brought a division of human society into cultured and uncultured. The architecture also therefore acquired in its*

...course a preliminary study is necessary. ...
...the Renaissance does not ...
...The Renaissance style and its ...
...the last phase of its development. Yet their ...
...origin and development, particularly in northern countries, ...
...from so many new influences and ideas, that we shall ...
...these in a special chapter.

II. The Structural System and Technical Methods.

With the revival of classical architecture the antique structural system again came into use, but in contrast to that of the Renaissance of the sixteenth and of the movement followed by the Baroque, some aesthetic satisfaction in the system of the Renaissance was not ...
...and uniformity of their bearing and supported members. ...
...the classical principles expressed in the column orders. ...
...and their entablatures became predominant in construction. ...
...the Renaissance favored no new structural system; but it ...
...as a set of the greatest importance, when it did not ...
...to the theories of the ancients, but in contrast ...
...in all respects, employed all systems ...
...of construction according to need. It merely introduced a ...
...into the art of the architect, since it ...
...free from structural restrictions, so far ...
...as aesthetic harmony permitted this.

With the same freedom it proceeded in the selection of its ...
...building materials and their technical treatment and employment. ...
...for the walls, ceilings, roofs and decorations, it employed the same materials as the preceding art periods. Only ...
...into use in greater abundance, yet not as an independent structural material in the present sense, but as an ...
...material for stone and wooden structures, particularly in the form of anchors and ties for arch stresses. The antique ...
...as far as possible such visible means of construction, that must produce reflections on their permanence: the Renaissance made abundant use of them, not only in arched ...
...even in great halls and churches. The walls consisted of a masonry nucleus, either of rubble or brickwork exposed with ...
...or lime mortar, in which the openings for light

further course a predominating courtly character.

** * Indeed strictly taken, the Renaissance does not thereby come to its end. The Barocco style and its successor the Rocco properly form the last phase of its development. Yet their origin and development, particularly in northern countries, results from so many new impulses and views, that we shall consider these in a special Chapter.*

175 II. The Structural System and Technical Methods.

With the revival of classical antiquity the antique structural system again came into use, that in contrast to that of the resolution of the masses and of upward movement followed by the Gothic, sought esthetic satisfaction in the rhythm of the predominating horizontal architectural masses and the equilibrium and uniformity of their bearing and supported members. Thereby the basal principles expressed in the columnar orders and their entablatures became predominant in construction. Thus the Renaissance invented no new structural system; but it performed an act of the greatest importance, when it did not restrict itself to the technics of the ancients, but in order to construct rationally in all respects, employed all systems of construction according to need. It thereby introduced a permanent basal idea into the art of the interior, since it held itself entirely free from structural restraints, so far as esthetic harmony permitted this.

176 With the same freedom it proceeded in the selection of its building materials and their technical treatment and employment. For the walls, ceilings, roofs and decorations, it employed the same materials as the preceding art periods. Only iron passed into use in greater abundance, yet not as an independent structural material in the present sense, but as an aiding material for stone and wooden structures, particularly in the form of anchors and ties for arch stresses. The antique had avoided as far as possible such visible means of construction, that must produce reflections on their permanence; the Renaissance made abundant use of them, not only in arched passages but even in great halls and churches. The walls consist of a masonry nucleus, either of rubble or brickwork executed with asphalt or lime mortar, in which the openings for light

and the supporting points are omitted for the finally applied facing with ashlar. In the dressing of the latter the Renaissance shows itself very fertile on the side of form. Before it ashlar mostly had smooth external surfaces. But besides these, ashlar with bosses and drafted margins were common in antiquity among the Greeks, Etruscans, Romans, and in the Romanesque period, particularly in fortifications, combined with smooth stones having ornamental chiseling, and in the Romanesque period was common the moulded border with smooth boss. The Renaissance adopted anew these modes of cutting ashlar as a very important decorative means for animating wall surfaces; these were richly treated in the form of square or rectangular diamond ashlar and those with flat raised bosses, and these were either used uniformly over the entire facades, or with a certain graduation, so that bold and irregular bosses were arranged for the lower story, for the second a regular jointing with flatter ashlar, with entirely plane ashlar or smooth coursed masonry in the upper story. (Fig. 209). From the irregular and dry treatment with bosses this method received the name of rustication, that was also transferred to ashlar with more careful treatment of the faces. The rustic work presents "a representation of rude strength in alliance with the arranging and creative spirit of man". -- Besides this masonry with a facing of natural stones, there is also such with bricks left visible, these being frequently stained red with white joints, usually as a covering of the wall between the cut stone architecture, frequently in combination with plastered and painted green surfaces, also by a network pattern of red and yellow stones. This mode of decoration was translated into nobler stone for particularly dignified constructions, and thus into facings with slabs of marble in surface patterns of different colors, a procedure that greatly flourished, especially among the Venetians. Greater favor was already enjoyed in the early period by terra cotta, both in natural colors as well as with variously colored glazes, and indeed for architectural enclosures as well as for purely ornamental decorations. If inferior and unequal materials were employed for the walls, a protective coating of lime plaster was given to them, to which was sometimes given an artistic effect by the sgraffito to be

including later. A building material was flaked for relief
 (see also the section on the late period of the late period
 of which excessive use was made, especially by the late period
 of the late period.

For the late period a robust and in the extreme construction
 of the late period; it is characterized by the extremely proper-
 ties (see also the late period) which are structurally treated as
 a wooden structure with console-like ends of beams and rafters.
 The structure and floor beams supported by this a very effec-
 tive foundation of the late period.

For the late period construction as a whole was chosen and for the
 of the late period of the late period of the late period, some rarely (in the
 of the late period, and for the late period, some rarely.

The structural ceiling was constructed either in wood as for-
 matted layers of beams and ceiling beams, or solidly in stone
 as a vault. For the late period the cross vault continues in use;

and the use of the medieval form was only retained in the early
 period; later the cross vault occurs almost always in the
 form of the late period, the entire structure of the late period

the vault. The tunnel vault was used in the late period, and
 as a late period structure to support the late period and ceiling of
 the late period. Over the late period it becomes the late period

another vault. A new form was introduced by the late period
 of the late period, which were preferably employed
 over the late period, vaults, which were preferably employed

based on the late period structure the late period as a broad car-
 vetto, above which the late period (vault) extended as a ver-
 y late period. The late period received a late period in the late period,

in the late period in the late period, later in curved ones.
 This sort of vaulting proved especially favorable, since it r-
 quired but little effort and presented large undivided sur-
 faces for the late period of the late period.

and the late period of the late period of the late period.
 The construction followed with the late period in
 the late period of the late period of the late period.

of the late period. For the late period the late period of the late period
 of the late period of the late period of the late period.

the late period of the late period of the late period of the late period.
 the late period of the late period of the late period of the late period.

described later. A building material very flexible for relief decoration was thus secured in stucco (see volume 1, page 76), of which excessive use was made, especially by the late Renaissance.

Wood takes but a modest part in the external constructions of Italian art; it is chiefly limited to the strongly projecting (up to 6.56 ft.) roofs, which are artistically treated as a wooden cornice with console-like ends of purlins and rafters. The Florentine and Pisan palaces acquired by this a very effective termination of the facade.

For the roof construction as a rule was chosen hri low purlin roof covered by hiles on metal plates, more rarely (in Genoa) with slates, and for slight inclinations, stone slabs.

172 The internal ceilings were constructed either in wood as horizontal layers of beams and ceiled beneath, or solidly in stone as vaults. For the latter the cross vault continues in use; but the ribs of mediaeval form are only retained in the early Renaissance; later the cross vault occurs almost always in the Roman form without ribs, the groins diminishing upwards towards the vertex. The tunnel vault came into more common use again, as a rule being subdivided by dropped arches and coffered after the antique form. Over winding stairways it becomes the annular vault. A new form was introduced by the Renaissance in the coved and panel vaults, which were preferably employed over corridors, vestibules, stairways and festal halls. They rested on the impost cornice crowning the walls as a broad cavetto, above which the middle panel (mirror) extended as a very flat vault. The panel received a gold frame run in stucco, in geometrical lines in the Renaissance, later in curved ones. This sort of vaulting proved especially favorable, since it required but little height and presented large undivided surfaces for the representation of relief and picturesque figure compositions. The execution followed with tiles laid flat in excellent stone and mortar; it placed great demands on the skill of the workmen. For great spans men preferred the sham vault already recommended by Vitruvius, built of wood with laths or board sheathing and a coating of reeds and plaster. Strong vault thrusts, when no tie rods were arranged, were fre-

frequently opposed by a corresponding strengthening of the walls by buttresses, which then extended their entire height with the same thickness, with cornices broken around them and airy caps like tabernacles instead of finials.

Dome construction received a greater development. Models for this were afforded both by the examples given by the Romans (in the Pantheon and the temple of Minerva Medica; volume 1, pages 135, 139) with circular or polygonal substructures, and also by the Byzantine system, which transferred the square ground form, by means of pendentives (volume 1, Fig. 178) in the form of spherical triangles or trapezoids, to the base ring of the dome, above the cornice of which rose the dome. Smaller domes were mostly built solid and were not rarely covered by a pyramidal roof, larger ones being erected in two shells (after the model of the dome of the cathedral of Florence, page 171), the external one chiefly having the purpose of protecting the internal one from the injurious effects of the weather. Therefore the great domes became comparatively light, but by the proper stiffening of both shells secured nearly the resistance of solid construction. The grandest dome construction of the Renaissance is represented by the dome of S. Peter at Rome. Michelangelo had arranged iron anchors in the drum in his model and iron rings in the dome, which were later increased (now five in all). For a third of the height both domes are built solid as one; then they separate into a thick internal dome and an external dome, which consists of a thin shell extending between strongly projecting ribs and covered with lead. (Fig. 210). In the hollow space between the two domes double winding stairways lead up to the lantern, then down again to the main cornice of the inner dome. Only by these stairways are the two domes connected together. With the vast internal diameter of 139.8 ft. (i.e., 39.4 ft. more than in S. Sophia), the dome of S. Peter's rests on a drum extended high above the roof of the colossal building at a height of 264.4 ft. and thus attains to the height of 404.9 ft. to the eye above the pavement. Thus aside from the perfectly harmonious control of the material and its architectural subdivision, it appears as the grandest structural work, that the history of

architecture has to exhibit anywhere.

III. The Architectural Treatment.

Still more decidedly and expressively than in the construction did the Renaissance apply itself to the architecture and decoration of the antique. It was then unavoidable, that at first only the most striking adoptions again found employment, frequently without organic propriety. The mediaeval arrangement of the ground plan and proportions of the mass of the structure yet continued for a longer time. To the facades were given a plinth as a base and a crowning main cornice, the wall surface lying between them having a subdivision into stories by belts. The wall surface was suppressed in the Gothic as much as possible, but again entered into its rights as such a and was strongly accented by rustication. The profiles of the belt and main cornices still show a very uncertain handling in the first time; it finds the beautiful more by an unconscious feeling of tact, than by a knowledge of the system. It is also at first less the correct and strong forms, than the happy distribution and the mass relations of the doorways and windows with their enclosures and the expressive development of the wall surfaces themselves, which carry in themselves the new elements of beautiful forms. To these are further added niches, balconies, bay windows, loggias, and at about the end of the early Renaissance, the entire antique system of pilasters and columns with its orders for the supports and entablatures, and furthermore already at the beginning of the Renaissance, an extremely rich decoration by relief and painted ornament.

The plinth in the early time chiefly consisted of slabs without mouldings and set on edge, in Florence of a low stone bench; in the high Renaissance, it was divided into three parts, after the model of the antique pedestal of a column. (Volume 1, page 126). The belts in the Florentine Renaissance were all continuous window sill belts with the profiling of the antique impost cornice; later they were lowered to the levels of the floors of the different stories, then receiving bolder forms with a tendency to the antique belt cornice. If bricks were employed for this, then slight projections were given to them,

but richer ornamentation. In cities with increasing population one also meets with projections of the upper stories on round arches with consoles or directly on stone consoles, even if far less commonly than in the North.

As a rule the main cornice adheres closely to the Roman modillion cornice (Compare volume 1, Fig. 131; volume 2, Fig. 211), but it was also freely treated in wooden construction with plastering on reeds, as a great cavetto in combination with round arches and colored decoration, thus forming an extremely magnificent crown to the facade.

The portals in the Florentine early Renaissance have a semi-circular top with a wide moulded enclosure. (Fig. 209). In Lombardy they are quite early enclosed by pilasters and even by candelabra -- columns with antique entablatures and rich ornamental work. (Figs. 212, 261). Instead of pilasters sometimes occur in Genoa, Umbria and Rome half, three-quarter and full columns (Fig. 213), as well as double columns with figures and pediment or segmental caps, and also finally with projecting columns, hermes or caryatids as supports for the balcony projecting above them. In the form and treatment of the window at first there still reacts the mediaeval tradition. They ended in round arches, frequently coupled by the insertion of a middle column. (Figs. 215, 250). The profiling of the enclosure generally follows the antique architrave. In the high and late Renaissance the window chiefly assumes the form of a vertical rectangle. It is then preferred to crown it by a frieze and cap (Fig. 216, 173), whereby these frequently rest on consoles. (Fig. 263). With a richer treatment of window enclosure forms an independent architecture of pilasters and columns with a parapet like a pedestal and an antique entablature, on which rests also a pediment or arched cap (see windows in Figs. 151, 157). As in late Roman art, likewise in the Renaissance, niches with round arched tops, frequently decorated by a shell (Figs. 251, 222, 268), became a favorite motive for animating wall surfaces and for the reception of statues. Balconies were not limited to a single window (Fig. 216), but frequently extended along an entire facade. (Fig. 252). If the face of the story above them be not set back, they were composed of projecting stone slabs on consoles and furnished

with a tall, green wall was an iron support by decorated
 with or little columns, and at about the end of the 13th cen-
 tury it became, a form of small, thin support exclusively for
 found in the Renaissance. It is not, however, the same as
 form of the column, but it is a new, differently shaped
 key without which could not the Italian Renaissance, even if
 less common than in modern art. They appear in the 15th
 form of decorated columns. But to reach the new common
 position, which already is reached Venice took a further step
 to introduce the new style of the column, and the new
 if the column have found the way to the remainder of Italy.
 They still retained their own and their, five steps for a re-
 cator basis of column, and this so properly continued to
 the Italian climate. The high and late Renaissance which began
 and a native introduced the column, the Ionic (volume 1,
 page 127); this is especially noticeable in a separate low story
 provided with small windows (fig. 255), and in columns in com-
 position with decorative elements and figure decorations.
 (fig. 256). The column is now not only a support, but
 part in the late Renaissance, but even in the 16th cen-
 tury architecture. With the new class of buildings a
 often received above the roof an additional like a pediment, but
 and towers or pavilions, or lines of columns with arches
 as and a low roof.
 These structures attained a further development about the
 end of the early Renaissance and in the high and late Renes-
 sance by the adoption of the entire system of columns and a
 column in all external architecture. Nearly all the more im-
 portant masses investigated the "orders of columns" of the
 ancients and fixed their proportions. Already the learned Al-
 bertus Magnus, in which he fully expressed himself in
 regard to the column orders: the classical (Vitruvius, 1501), Roman
 and Palladian (in this latter in a far stronger sense. They
 took the system from the Roman monuments for the Venetian
 (fig. 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827, 1828, 1829, 1830, 1831, 1832, 1833, 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1858, 1859, 1860, 1861, 1862, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881, 1882, 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336

with a railing, whose rail was at first supported by decorated slabs or little columns, but at about the end of the 15 th century by balusters, a form of small free support exclusively belonging to the Renaissance, that indeed recalls the antique form of the candelabra, but is here quite differently employed. Bay windows likewise occur in the Italian Renaissance, even if less commonly than in northern art. They appear in the South more as covered balconies. But so much the more common are loggias, which already in mediaeval Venice form a design characteristic for the art of the city of the lagoons, and may well from thence have found the way to the remainder of Italy.

182 They afford protection from sun and rain, give space for a greater number of persons, and thus so properly correspond to the Italian climate. The high and late Renaissance again adopted a motive introduced from the antique, the attic (volume 1, page 107); this frequently increased to a separate low story provided with small windows (Fig. 236), and it occurs in combination with balustrade terminations and figure decorations. (Fig. 232). The pediment first came into more extended employment in the late Renaissance, yet more in church than in secular architecture. Villas and the better class of dwellings often received above the roof an addition like a portico, termed loggetta or belvedere, on piers or columns with architraves and a low hip roof.

Facade architecture attained a grander development about the end of the early Renaissance and in the high and late Renaissance by the adoption of the antique system of pilasters and columns in all external architecture. Nearly all the more important masters investigated the "orders of columns" of the ancients and fixed their proportions. Already the learned Alberti wrote a treatise, in which he fully expressed himself in regard to the columnar orders; the theorists Vignola, Scamozzi and Palladio did this later in a far stricter sense. They took the system for on the Roman monuments for the Tuscan, Doric, Ionic, Corinthian and Composite orders (volume 1, page 108 et seq.) without substantial alternations, and thereby established a canon for the monumental treatment of facades, which remained in force until the most recent times. Figs. 217,

243, 259, 262, 273 and 275 exhibit how, though somewhat ~~unre-~~
trained in conception from the beginning, the mature style gr-
adually developed.

183 The Renaissance worked out an endless variety in the forms
of details. By an extremely capricious fusion of Ionic and Co-
rinthian forms and the intertwining of conventionalized and n
naturalistic foliage with emblems, animal forms and figures,
were produced new capitals for columns and pilasters in lavish
abundance. (Figs. 218, 219). The shafts of the columns were
richly ornamented by flutes, cabled or plain, by small figures
and festoons on the lower third, and even with ornamental work
covering their entire height (Fig. 220), and likewise the pil-
asters had vertical bands of scroll ornaments in sunken panels
(arabesques; Fig. 222). With equal luxuriance were decorated
the entablatures, the arch spandrels and even the pedestals of
the columns. The early Renaissance shows itself in this resp-
ect more tolerant and fertile than the developed style, by w
which certain limits were placed for purely ornamental art for
the benefit of the predominant architectural effect. Beside
the columns, piers with square, rectangular and octagonal sec-
tions, candelabra-columns, particularly in upper Italy, hermes
(i.e. busts with supporting piers diminishing downwards, Fig.
274), as well as caryatids and atlantes (Volume 1, pages 70, 82)
found employment as free supports or as those attached to the
walls. But the latter do not, as in the antique, have an ind-
184ifferent pose, but as the supports of the balconies and ceiling-
s, they oppose themselves with visible expression against t
the loads resting on them. Since the great architects of the
Renaissance were also sculptors and also mostly painters, they
had relief and painting at command, and they placed these in
the richest measure in the service of architecture.

IV. Internal Architecture and Decoration.

Like the antique in its time, the Renaissance transferrred
in a similar manner the architectural system developed on the
facades also to the internal architecture, so far as this cor-
responded to the intended purpose of the room. But in this
church buildings did not come into consideration, or at least
not chiefly. As a genuine "art of living", their attention

was devoted in equal measure to the palace of the noble and even to the dwelling of the well to do citizen, in order also to give to it convenience, comfort and artistic beauty. Thus the great halls, reception and living rooms were then treated as impressively as possible, and not only these, but also the entrances to them. Since the state and living rooms were no longer on the ground level, as in the antique house, but lay in the upper story, the construction of the stairways rose to great importance. In these the Renaissance created new architectural types almost without models. The narrow winding stairways of the middle ages were only retained for the servants' and subordinate rooms. For the main stairways were chosen straight flights of stairs with resting places (levels), convenient and low steps. The early Renaissance chiefly placed them in one of the porticos surrounding the court (Fig. 185). But the high Renaissance and yet more the late Renaissance erected spacious and inserted stairways as imposing show porticos in the great style, treated with costly materials, excellent sculptures and rich paintings on the walls and ceilings.

185 The floors, in case they were laid on masonry ceilings (vaults), consisted of simple structures of terrazzo (i.e. bits of stone rolled into a layer of cement, rubbed down and polished), in richer ones of glazed clay tiles, marble slabs and mosaics; over wooden ceilings were adopted a simple board covering or a parquet floor.

With extreme richness and variety were the walls decorated. On them the great sculptors and painters, working together, frequently produced results of the highest artistic worth. With execution in relief the architectural subdivision of the wall was always treated according to the antique principle with plinth, a row of pilasters, whose cornices and panels enclosed in the intervals formed the basis. The members, frieze and panels received a rich relief for painted ornamentation, whose charm was based on the refined graduation of the architecture and ornament, and the pleasing treatment of the details. (Fig. 222). Likewise in exclusively painted decoration the conception is chiefly architectural (Fig. 223); plinth, pilasters, frieze and cornice were still painted in simple colors

in the 15 th century (gray on gray or brown on brown), but latter is varied treatment. Instead of a facing with the nobler kinds of stone or with stucco usually appeared wooden paneling, either in almost the entire height of the walls, so that above the cornice only remained space for a painted frieze as the upper termination of the wall, or as a high parapet. In secular buildings the walls in rooms serving less for state purposes were almost entirely hung with fabrics, stamped leather and woven fabrics, and finally were covered by painted or printed papers. As special show pieces were the mantles treated. They had an architectural construction with pilasters or columns, sometimes also with atlantes as supports of the cornice and crowned by caps like pediments or by coats of arms in relief.

If the ceilings consisted of horizontal layers of beams, they were treated as coffered ceilings, either by a ceiling on the beams and the placing of bands, or by timbers inserted between the beams and correspondingly covered by paneling and mouldings. Prototypes for these existed in the portico ceilings of the antique, (Volume 1, page 65), and in the coffers of Roman vaults. (Volume 1, page 118). In the Renaissance these ceilings were frequently enclosed by rich carved work, painting and gilding to transcendent splendor. The panels (coffers) were originally square, later hexagonal and octagonal with triangles lying between them etc., and shaped in star forms. In the late Renaissance (first in the Doge's palace at Venice, after 1510) the uniform division into coffers was abandoned in favor of a large middle panel enclosed by a wide gilded frame, and containing figure compositions of the grand style in naturalistic colors on the background. By these the design of the interior was elevated, and the impression was created, that the ceiling was perforated, permitting a view of ideal architecture and landscapes, variously colored figure groups and the like. In well calculated graduation then the paintings of the subordinate panels are kept in a single color (in brown, gray or a bronze tint). Likewise on the vaulted ceilings of about the same time are omitted the originally prevailing coffers in favor of a similar division of the surfaces of the vaults into panels, in which painting finds space for earnest historical

representations, as well as for the development of the plastic
art itself.
In the transition from the primitive to the classical period
then as in the middle ages. The enjoyment of ornamental work
had become more intensive and cerebral. With painted reliefs
then were combined the works of sculpture, of painting, and of
the minor arts; they were then raised more for merely esthetic
enjoyment than as mental representations, though pleasing to
the eye. Thus figures and scenes from the ancient myths res-
tored an artistic unity to the entire composition.
Hence, the high nobility of form of the antique art became
again the chosen ideal of the Renaissance master. Yet formal
beauty indicates only one basis of their artistic creation, a
technical one, and not the most important. The aim of the Renaissance
once lies in an expressed feeling, which instead of general
form, is expressed in a certain way, and which with the
activity of individuals is the artistic expression of the
of character, and which in the last, highest, outward form is
same. The artistic expression is based in technical skill
no line. Therefore sculpture in relief becomes a representa-
tion of the future with architectural and landscape back-
ground viewed in perspective (Fig. 225), and it sometimes even a
comes into its service the sister art (by painting and writing
the whole or certain parts). This fresh conception of nature
is especially peculiar to the works of the Quattrocento. In
the 15th and 16th Renaissance occurs -- in relief more than in
sculpture -- again the conception which, however, the artist
could achieve, the unity formal unity which occurs either
in the foreground.
In general sculpture retained the relief position in the 16th
century of the Renaissance by giving the relief its back-
ground in the foreground, as a separate entity, in the historical
architecture of churches (on altars, pulpits, tombs and the like)
and in houses (for example, the wall reliefs in the first decorative
style). The relief reliefs were applied in the first decorative
operational form. The Renaissance developed a new type of
relief in the historical technical sense. All technical relief
is now included in the sense of sculpture; sculpture is not

representations, as well as for the development of rich ornamental magnificence.

187 To the ornamental arts fell an infinitely greater importance than as in the middle ages. The enjoyment of ornamental work had become more intensive and general. With spirited recognition were pursued the works of sculpture, of painting, and of the minor arts; they were then prized more for merely esthetic enjoyment than as mental representations, though pleasing to the eye. Thus figures and scenes from the ancient myths reappear as favorite motives and even penetrate into consecrated places. The high nobility of form of the antique art became again the chosen ideal of the Renaissance master. Yet formal beauty indicates only one basis of their artistic creation, indeed not one of the most important. The aim of the Renaissance lies in an expressed realism, which instead of general types sought to present a picture of the actual world with the diversity of individuals by the strongly emphasized expression of character and impulse in the face, figure, movement and clothing, with the entire surroundings in space in complete truth to life. Therefore sculpture in relief produces a representation of the figures with architectural and landscape backgrounds viewed in perspective (Fig. 225), and it sometimes even takes into its service the sister art (by painting and gilding the whole or certain parts). This fresh conception of nature is especially peculiar to the works of the Quattrocento. In the high and late Renaissance occurs -- in relief more than in painting -- among the conscious antique tendencies, the generalized endeavor for purely formal beauty again becomes stronger in the foreground.

188 Monumental sculpture received its chief problem in the production of figure decorations by statues and reliefs for facades (on portals, in niches, as crowning roofs), in the internal architecture of churches (on altars, pulpits, tombs and the like) and of palaces (on stairways and on mantles in the great halls). The minor reliefs were applied to the rich decorative ornamental work. Its conventional development proceeded according to the tendencies mentioned above. All technical methods were included in the domain of activity; sculptures in nob-

noble and common stones, in stucco, bronze, terra cotta and wood. Sculpture in stone and in stucco became general, the first chiefly in external architecture, the latter (after the middle of the 15 th century) came into use in the internal ornamentation. casting in bronze reached high perfection. Already with the beginning of the early Renaissance, the Florentine Ghiberti, a contemporary of Brunelleschi, had created in the eastern bronze doors for the baptistery at Florence one of the most famous masterworks of sculpture. (Fig. 225. *). Terra cotta, likewise by a Florentine master of the Quattrocento, Luca della Robbia, was elevated to a new species of sculpture, when he produced his figure reliefs in medallion form in colored glazed clay in an ideal beauty of treatment of form and color. An important place was further taken in the Renaissance by decoration in wood, both in a purely architectural use (supports, cornices, frame enclosures etc.), as well as in wood carvings. Their execution occurred partly in the round, partly in high and low relief, or lying entirely flat in the surface as inlaid work, or as intarsias (marquetry). This technical procedure was already proved in antiquity; it was again revived in the middle ages and reached the highest perfection in the early Renaissance. The method of execution consisted in laying thin veneers of different woods on each other, ivory, mother of pearl and metals, then sawing them out at the same time, properly interchanging them, glueing and laying them. The drawings still consisted of geometrical patterns in the middle ages, almost always in black and white, but after the beginning of the 15 th century were ornaments, architectural perspectives, landscapes, and even representations of figures.

** These doors contained in 10 panels figure reliefs, which represent scenes from the Old Testament, from the creation of man onwards. Michelangelo was so enraptured by their beauty, that he said, that they could stand at the gates of paradise.*

To monumental painting fell the rich colored ornamentation on ceilings and walls. In the 15 th century it chiefly sought to imitate architecture by a colored coffering of the vault compartments and architectural perspectives with garlands etc.

on the wall surfaces. The larger mural paintings were enclosed by bands or enclosures, that are again interrupted by smaller paintings contained within circles and polygons like medallions. In this manner the meaning of the great paintings was brought into harmony. As the technical method, fresco (volume I, page 155) almost exclusively came into use, which showed itself to be very suitable and durable for the internal architecture. Likewise on the facade the enjoyment of artistic decoration frequently no longer left free the clustered surfaces between windows and columns; they were then covered by ornamentation or fresco paintings in fresco or in the more durable self-fitting. In the latter case the wall surface first received a wet plaster (rough), then a thin layer of fine plaster (smooth), in which by means of a trowel the design was produced by removing the excess of plaster. Then the artist painted a fresco, which was as durable as ever the traditional fresco. Likewise champlevé ("light-dark") frequently came into use, a painting with but one color on the wet plaster ground. At the end of the 15th century, introduced by the artists from the East, was the technique of the "fresco secco", which effected a great transformation in the decoration and indeed greatly in the utilization of the internal walls and ceilings. In a champlevé the painting is made on a dry surface of plaster or on a surface of stone, starting from the antique prototype of "champlevé", ornamental motives of all kinds, human and animal forms, fabulous beings, imitations of technical, natural and scientific, fabulous architecture, events from mythology, etc., and finally, also landscapes, often enclosed in walls or frames within delicate frames of stucco, with ornamental work, especially acanthus scrolls, garlands of flowers and leaves, etc. The most common forms and colors were the blue, red, green, yellow, and white. The technique of champlevé was a popular and accessible artistic method, which required no elaborate technique and a tedious work on the walls and ceilings, controlled by the most refined feeling for a cheerful and ornamental effect. All details were executed in perfectly graceful drawings; the whole covers the surface in a uniform and harmonious atmosphere and leads

on the wall surfaces. The larger mural paintings were enclosed by bands of ornament, that are again interrupted by smaller paintings contained within circles and polygons like medallions. In this manner the meaning of the great paintings was brought into harmony. As the technical method, fresco (volume 1, page 125) almost exclusively came into use, which showed itself to be very suitable and durable for the internal architecture. Likewise on the facades the enjoyment of artistic decoration frequently no longer left free the plastered surfaces between windows and cornices; they were then covered by ornamental or figure paintings in fresco or in the more durable sgraffito. In the latter case the wall surface first received a dark (mostly black) background, then a thin white or light yellow coating over this, in which by means of properly shaped points and scrapers, the design was produced by removing the coating in lines or spots. Thus had been obtained a facade painting, which was as durable as even the plastering itself. Likewise *chiaoscuro* ("light-dark") frequently came into use, a painting with but one color on the wet plaster ground.

190 About the end of the 15 th century, suggested by the discovery of the Baths of Titus in Rome (volume 1, page 114), was perfected a great transformation in the decoration and indeed chiefly in the ornamentation of the internal walls and ceilings. In a variegated alternation and combination of stucco with painting were interwoven, starting from the antique prototypes of "grotesques", ornamental motives of all kinds, human and animal forms, fabulous beings, implements of technics, art and science, fanciful architecture, events from mythology, poetry and history, also landscapes, often enclosed as small pictures within delicate frames of stucco, with ornamental work, especially acanthus scrolls, garlands of fruits and foliage, bands and knots. The most charming forms and colors were thus enchanting in a blooming and inexhaustible artistic imagination, which combined the separate pictures into a rapturous play on the walls and ceilings, controlled by the most refined feeling for a cheerful and ornamental effect. All details were executed in perfectly graceful drawings; the whole covers the shafts of the main and subordinate pilasters and their bands,

as well as the enclosures of the tops of walls and ceilings in the Renaissance style. By this method Raphael and his followers and the finished the houses of the Vatican in Rome (1518-1525), thus creating the most beautiful and artistically interesting pictures in the world. (Pier. 226, 227). Their style of decoration thereby attained to classical importance.

From the Renaissance the decoration of walls and ceilings by great paintings. Yet in accordance with the antique tendency of the time, the relief element in decoration became stronger, in order to produce a greater harmony of the subdivision of the wall with the architecture. The colored ornamentation on the walls was gradually receded in favor of the purely architectural ornamentation. The late Renaissance style is a direct result of this tendency, which led to the large paintings in the main and some side panels (Fig. 228). While the others were left in white space and partially tiled. The tendency toward relief decoration even continued, which frequently falls into the imitation of architectural pictures and statues.

On occasion after the beginning of the 16th century, painted architectural elements were used. Finally Renaissance decoration of the architectural appearance consisted of the architectural framework with the sculptures. Finally Renaissance decoration of the architectural appearance consisted of the architectural framework with the sculptures. Finally Renaissance decoration of the architectural appearance consisted of the architectural framework with the sculptures.

ure, certainly designed to enhance their pompous effects. In ornament the basis was formed by antique ornamental motifs and decorative forms, the Roman acanthus with its foliage and scroll work in combination with vases, candelabra, masks, and scrolls. The Renaissance style, which was a direct result of the antique, was a direct result of the antique. The Renaissance style, which was a direct result of the antique, was a direct result of the antique.

as well as the enclosures of the parts of wall and ceiling in an entirely flat character, so that these decorations join in the general effect. By this method Raphael and his followers and pupils finished the loggias of the Vatican in Rome (1513-1519), thus creating the most beautiful and artistically interesting porticos in the world. (Figs. 226, 227). Their style of decoration thereby attained to classical importance.

191 Besides this ornamentally conceived decoration, there continued in use in the high Renaissance the decoration of walls and ceilings by great paintings. Yet in accordance with the antique tendency of the time, the relief element in decoration became stronger, in order to produce a greater harmony of the subdivision of the wall with the architecture. The colored ornamentation on the walls thus gradually receded in favor of the purely architectural ornamentation. The late Renaissance finally limited it in great part to the ceilings, indeed there to the large paintings in the main and some side panels (Fig. 224), while the others were left in white stucco and partially gilded. The tendency toward relief dominates even painting, which frequently falls into the imitation of architectural sculptures and statues.

On facades after the beginning of the 16th century, painted ornamentation already receded. Likewise there the essentials of the structural appearance consisted of the architectural framework with the sculptures. Finally Renaissance decoration appears in complete dependence on the architecture and sculpture, certainly designed to enhance their pompous effects.

In ornament the basis was formed by antique ornamental motives and decorative forms, the Roman acanthus with its foliage and scroll work in combination with vases, candelabras, masks, cornucopias, trophies, bands, wreaths and garlands of flowers, with interwoven representations of figures, together with frets and wave lines. The foliage was taken from the native plant world and treated naturally or conventionally, in the latter case in direct connection with the antique. The masters here proceeded very properly, when they shaped leaves and scrolls to be executed in marble, differently from those in wood, and those in terra cotta again differed from bronze foliage. Pu.

... of the ... the ...
... in ... the ...
... the ... the ...
... from the first in the Renaissance). The latter rise fr-
... on flower corollae or vase forms as organic compositions of a
... conventionalized leaf forms, particularly of the antique (Rom-
... an) sculptures and the interlaced scrolls (volume I, figs. 138)
... with naturally created forms of all kinds, leaves, flowers and
... forms, but also with a style form of conventionalized li-
... men stalks growing above each other with corollae and vases,
... or follow a series of spirals, the whole animated by birds and
... forms, as well as human figures, heads and feet of
... forms, which give form to the whole (fig. 139).
... these forms consist of spirals, leaves and vases of vases,
... that are connected with the forms of the whole.
... forms, and are animated by conventionalized and natural li-
... vase and scroll work. This ornament already received in the
... characteristic the not exactly appropriate appellation of "ars-
... besque". (Volume I, page 214). It appeared in the 15th and
... the beginning of the 16th century as a nearly independent re-
... suit of the art of the time, and is essentially different from
... the "Renaissance" style in the first manner of the 16th cen-
... tury. The Renaissance is always a surface decoration generally
... arranged according to geometrical forms, filling, connected
... and flowing as itself, which was originally created in relief
... (fig. 140). But the grotesque rather represents a loose and
... fanciful arrangement of the motives from art, nature and life
... in a kind of interlacing of conventional forms with those of na-
... ture, which is the style, executed in a composition of ar-
... chitectural forms and figures (fig. 141). The style
... which was executed in the 16th century, was a
... and is connected to the forms and the figures of the
... of the style and the figures of the style (fig. 142).
... after the Renaissance style had become the style of the
... style, it is the style of the style. The grotesque created
... style is the style of the style. The style of the style is the
... style of the style. The style of the style is the style of the style.

Purest in drawing and execution appear the ornamental forms chiseled in marble; for these are especially characteristic again the panels cut in the pilasters instead of flutes. (rejected from the first in the Renaissance). The latter rise from flower corollas or vase forms as organic combinations of conventionalized leaf forms, particularly of the antique (Roman) acanthus and its interlaced scrolls (volume 1, Fig. 138) with naturally treated forms of all kinds, leaves, flowers and fruits, that either form a single stem of candelabra-like flower stalks growing above each other with corollas and vases, or follow a series of spirals, the whole animated by birds and other animals, as well as fabulous beings, heads and feet of animals, which directly pass into the plant work. (Fig. 228). Other panels consist of trophies, weapons and coats of arms, that are grouped together with objects of the most different kinds, and are ornamented by conventionalized and natural foliage and scroll work. This ornament already received in the Quattrocento the not exactly appropriate appellation of "arabesques". (Volume 1, page 214). It appeared in the 15 th and the beginning of the 16 th century as a nearly independent result of the art of the time, and it essentially differs from the "grotesques" occurring in the first quarter of the Cinquecento. The arabesque is always a surface decoration generally arranged according to geometrical rhythm, filling, connected and growing by itself, which was originally executed in relief. (Fig. 228). But the grotesque rather represents a loose and fanciful arrangement of the motives from art, nature and life in a continual alternation of ornamental work with framed pictures, medallions and shields, executed as a combination of ornamental relief in stucco with painting. (Fig. 227). The grotesque also experienced an infinitely more varied use, when it was no longer restricted to the frames and the character of the ornaments filling them, but also extended over larger portions of the walls and even entire ceilings. (Fig. 223).

After the grotesque ornament had reached its climax in the Vatican loggias, it rapidly receded. The decorations created with refined and tactful feeling in perfect harmony by an art caprice adjusted most happily must lose their charm, as soon

as they were transferred in a merely imitative way by less gifted artists to areas, for which the originals were not intended. To this was added the great predominance of the architecture calculated for a general structural effect, which so far as the works of the severe theorists did not come into consideration, was corrupted almost capriciously in its profiles, and the love for individual things was no longer applied to the details, but was based on their former treatment. The relations between figure and pure ornament, so carefully adjusted in the best period, between stucco and color, area and frame of the picture, became variable and uncertain. The composition fell into a patterned and expressionless series of lines, into a heavy treatment of details overloaded in relief. Thus the decoration lost its importance and its esthetic intent in the same measure, in which the architecture passed into the grandiose and must strive for that scrupulous heightening of the effect, that should aid the imperious feeling of the owners, directed toward the pompous in the late Renaissance.

193 V. The Architectural Works.

A. Church Architecture.

The dominant circles in the Christian church at the appearance of the Renaissance were still too greatly embarrassed by the mediaeval conception of art, that they could not at first meet it with a full understanding. They remained alternating, varying and uncertain toward the new movement, even if they did not oppose most decidedly its "entire nature and tendency" and that of humanism as a dangerous intellectual tendency based on pagan views. But after the Renaissance had explained itself and had reached a certain maturity, the Roman papacy -- and this merits special consideration -- saw in the "adoption" of the genuine Renaissance in the ecclesiastical circle of ideas, an extension of the limited mediaeval idea into a generality. * Thereby ecclesiastical art was led out of the restraint of the Gothic world of form into a freer activity, appropriate to the time.

* Kraus. *Geschichte der christliche Kunst.*

The most important innovation experienced by church architec-

architecture in the period of the Renaissance consisted in this, that men no longer held themselves bound to the ritual basilican system, but saw in the central building, whose precursors in the round and polygonal structures of the Roman, Early Christian and Romanesque periods still in great part remained before their eyes, the most perfect model for the Christian House of God. * * This afforded greatness, unity and uniformity in the creation of the interior, the most favorable arrangement of the light, and a harmonious subdivision of the interior and of the exterior. In it the high middle room covered by a dome formed the nucleus of the building, erected on a round, polygonal or square ground area, and to which was added either four tunnel vaulted cross arms (according to the model of the Byzantine church; volume 1, page 188), outer aisles, or a circle of chapels. Yet the central design did not exercise supremacy -- and aside from the chief works of the high Renaissance -- it did not once predominate over the basilican system. For this had been connected with the sacred tradition for so many years, for the idea to be suppressed, that it had the true and pure form of the Christian church building. To this was added, that the central structure still represented a scheme too strongly restricted in itself, that the enlargement of the interior and the addition of chapels and subordinate rooms with a free development of the facade, on which men placed special value afterwards as before, did not appear as favorable. Thus in the early Renaissance beside the horizontally covered or cross vaulted basilica was developed the central building, as being on the whole a new form of church building in the West, and it attained in the high Renaissance its highest, nearly absolute perfection. In the late Renaissance men came to combine the central building with the basilica in the manner, that the former was chosen for the design of the choir and this was adjoined by a nave. Individually the Renaissance churches have the most decided variations in the ground plan and elevation; always characteristic is the unified creation of the interior, the dome over the central area, or the transepts, and the architectural system peculiar to the Renaissance.

* * How strongly the central structures with domes affected

the masters may be seen, in that such already in the earliest time were represented with very particular favor on the backgrounds of their altar paintings and reliefs.

For buildings with naves the three aisled basilica, as it had been developed in Romanesque art with its proportions of masses in the width of the middle and side aisles, formed the basal scheme in the arrangement of the supports and the division of the bays of the vaults. The vaulting was either executed in all the aisles or only in the side aisles, while the middle aisle either received a horizontal wooden ceiling, or if even more rarely and scarcely except in the early Renaissance, the visible wooden roof framework. The Renaissance generally continued as being opposed to the hall type. The churches of the Orders strove for simplicity and were mostly single aisled with a row of chapels at both sides and a horizontal ceiling. From the middle of the 16th century onward such single aisled churches were also preferred for parish churches and were vaulted, either with a tunnel vault, intersected by the cross compartments over the windows, or by flat domes, arranged along the longitudinal axis. These single aisled churches extended by rows of chapels at the sides finally became the prevailing type of catholic church architecture. The towers (Fig. 229) in Italy in the time of the Renaissance also chiefly stand detached beside the building; only in the 16th century were they sometimes arranged in pairs and included in the composition of the church. Particular attention was devoted by the Renaissance to the sacristies, which were arranged on the northern side of the church in the angle between transept and choir, for the safekeeping of the church vessels and vestments, for the library, and as a waiting room for the clergy, before and after divine service. They are mostly additions, indeed being preferably treated as small central structures and are frequently very richly equipped. (Figs. 222, 230).

The structure for single aisled churches shows a subdivision of the walls by pilasters or engaged columns with arches turned between them over the chapels or the window openings. For designs with several aisles columns appeared at first and indeed principally in the early Renaissance as supports of the

walls of the middle aisle with ceilings with the antique subdivision by beams and arched forms, or octagonal piers were employed in their places. In the high and late Renaissance the internal free supports are mostly in the form of square piers (Fig. 231) with half columns or pilasters projecting from their sides, to which corresponds a similar subdivision on the walls. From the piers frequently rise cross arches, which span the aisles and divide the ceilings into bays. The walls in northern Italy often exhibit the natural rubbed sandstone, or they are satisfied with white plaster; but in the South they show a rich magnificence of color. The decorative equipment of the interior reaches its climax in the altars and particularly in the tombs, that exhibit the contemporary longing for fame; these in structure and in detail forms are treated in accordance with the architectural system of the Renaissance, and they are developed with very particular care in their painted and relief decorative work.

The external architecture at first retained the mediaeval system with a new clothing in the Renaissance forms. As in the middle ages, it was chiefly executed later by facings, and was limited principally to the front facade, the choir and the dome. The sides remained in the early Renaissance entirely plain without any subdivision; first in the course of the 16th century did they receive a modest and similarly treated coating of plaster. The main facades at first follow the antique elevation of the Roman triumphal arch with an order standing on a high pedestal and with a crowning pediment. (Fig. 232). Later (first on the cathedral of Pienza in 1462) the church facade was chiefly arranged in two stories, perhaps caused by the requirements of obtaining an elevated loggia for bestowal of the blessing. The architectural development of the facade for basilican designs presented many difficulties, in that a satisfactory ending in the front facade must be given to the low shed roofs of the side aisles. The problem was most simply solved by attaching a half pediment (with inclined ascending cornice) to the front wall of the middle aisle. For curved roofs the quadrant was indeed also employed. Alberti chose the volute as the termination of the shed roof on S. Maria No-

Novella in Florence (completed 1470), thus creating a motive, that the later Renaissance frequently employed, often superfluously. With such a form of facade the cross section is expressed in a facade but slightly or even not at all, and therefore it is only satisfactory in a slight degree. Happier are the solutions, in which the facades directly terminate in the form of the roof, indeed in a half or quarter circle, as on some churches in Venice and on the islands of the Adriatic Sea. (Fig. 233). In the treatment of the portals, windows, cornices and the like, the developed Renaissance adheres always to the classical ground principles, but at the same time with the same richness as in secular architecture.

** By far the greatest number of the Italian Renaissance churches have never been completed externally, but have remained in the rough construction.*

177 Monastery designs were allied to church architecture and retained the mediaeval grouping of the buildings, but by the beauty and variety of the porticos around the courts with columns and piers, they again attain to a peculiar artistic importance. The monasteries of higher rank are usually extended architectural designs, which compete in the equipment of certain rooms with the churches and the palaces of the great.

B. Secular Architecture.

The great Italian palace structures in the early and high Renaissance still permit the endeavor of the ruler to be recognized, in consideration of frequently very stubborn opposition, to overpower rivals, leagues, cities and influential families, and to care for his personal safety, when he gave his residence the form of a palace indeed, but otherwise protected it. They surrounded their castles by moats and walls, built defensive towers at the angles, as well as also selecting a site protected by nature. First in the late Renaissance such arrangements were omitted. The ground plan varied in most of the building problems, but from the beginning onward it always forms a building area in regular geometrical (rectangular or even polygonal) form enclosing one or more internal courts, which always evidence a constant endeavor for suitability and convenience.

The palaces of the nobles already had a regular plan in the Gothic period (page 163), which was also retained by the Renaissance, and was further developed in its tendency to comfortable living and to show. In the different architectural regions were developed individual peculiarities. The earliest type is the Florentine -Sienese, which has a determining importance for all Italy, particularly by the advantages of its form of ground plan. The ground plan groups and indeed the halls for each purpose, among which are dining halls for each season of the year, house chapels etc., as in the antique house, around an uncovered court surrounded by porticos, from which are entered the rooms arranged in the ground story. In the upper stories are found closed corridors over the porticos, from which doorways lead into the halls. To the designs of stairways and the treatment of the facades have we already referred on pages 184 and 179. Likewise in Urbino, Ferrara and the Romagna the palaces follow the Tuscan model, also in Bologna, but there with the peculiarity, that the facades in the ground story next the streets are interrupted by continuous arched porticos.

The Roman palaces take from the Tuscan type the ground plan, but in the treatment of the facade are inclined to an expressed architectural treatment, as indeed best characterized by palace Farnese. (Figs. 251, 211, 258). The chief stress is placed on a grand effect of the court, on which the open columnar or pier porticos frequently extend through several stories. The late Renaissance introduced in the facades in Rome as also elsewhere, particularly in Vicenza, Genoa, Milan etc., the "colossal order", i.e. a row of great columns or pilasters, which extend through all the stories from the plinth to the main cornice. (Figs. 235, 273). Thus especially on the imposing facades of Michelangelo and Palladio the pseudoperipteral colonnade of the late antique again appears also in the late Renaissance.

In the Venetian palaces is expressed a strong reaction of a mediaeval art. The design of the building firmly adhered to the scheme developed by the Gothic. (Page 164). The chief attention of the master in the city of the lagoons was paid to

the ornamental, that in the time of the early Renaissance still chiefly assumed Gothic forms, but later a splendid columnar architecture with a cheerful intent.

Villa architecture took an important place with the general enjoyment of nature and the expressed inclination to staying in the country from the beginning in the Renaissance period. Men already early distinguished between the proper country house intended for a longer residence and the "suburban villa", a pleasure house located before the city for slight or transient occupancy. The ground plan had generally a symmetrical design, in which the rooms were grouped around a rectangular or circular central hall. Since these buildings in the country were not intended for a development in height, they were mostly one story. The servants had their rooms in the cellar story or in the upper "concealed" half story (mezzanine) in the late Renaissance, which in the time of the theorists also came into use in the palaces more and more as intermediate stories. The suburban villa was preferably placed on a gentle slope; it was invitingly and cheerfully treated.

In the high and late Renaissance great importance was attained by the garden and park designs connected with the villas. In direct connection with the villa was a show garden (Fig. 287) adorned by terraces, balustrades, flights of steps, fountains, cascades and sculptures of all kinds, accessible by magnificent gateways and with picturesque perspective views of distant hills, cities and villages. In these Italian gardens predominated architectural lines, in contrast to the "English" gardens preferring free nature (see volume 3), and the former strove for a harmony with the buildings; they were conventionalized designs subordinated to the architecture.

The dwellings in the cities, like the palaces, adhered to the antique ground plan as much as possible by grouping the rooms about a court, surrounded if possible by porticos on one or more sides. The dwelling generally was in the upper story; the ground story being chiefly utilized for shops, stables, coach houses and the like. For officials, artists and learned men houses for rental were erected already in simple and sometimes in rich treatment.

Contrary to Alberti's reference to the advantages of curved streets, * the city lay-out preferred a straight course for the streets. The more important cities competed with each other in the straightening of the streets and the preservation of continuous lines of houses. Everywhere men looked after obtaining larger open squares, surrounded by sale booths and airy porticos. These and the streets in the more eminent portions of the city were paved, and the churches and public buildings were surrounded by raised walks.

** He said that the city appears larger, the houses present themselves to the eye with variety, shade was then wanting in no street, the wind was stopped, and defense against enemies was made more easy.*

Among public buildings the city halls stood in the foreground, (in Italy chiefly named palazzo comunale, municipio, del consiglio, della regione etc.). In the early Renaissance they still have the castellated appearance with defensive galleries and battlements, but later are buildings like palaces with a regular arrangement of windows, widely opening entrance halls (Fig. 239), great stairways, large halls for assemblies and sessions, with wide corridors for access to the halls, and the smaller working rooms and the house chapel, seldom wanting in the city halls.

The universities (page 156), high schools, and which chiefly jurisprudence and medicine enjoyed a high regard in the Renaissance period. They retained in the early and the earliest high periods the traditional cloister plan, which also corresponded to the antique arrangement, and a suitable grouping of lecture halls and rooms around a quiet court enclosed on all sides was made possible. Later these buildings for instruction were elevated to magnificent structures in a grand style with impressive courts with porticos and grand stairways.

In close relations with these stood the libraries, elongated and in one or more stories, well lighted, mostly richly decorated rooms with cases or chests along the walls for the preservation of the books and with tables for writing and reading. They were not alone erected as state buildings; nearly every city had its own library.

It confers particular honor on the Renaissance, that the hu-

humane tendency of the age is also recognized in the care for the physical welfare of the sick and the poor by the erection of hospitals. These are frequently great and monumentally treated architectural designs with open entrance porticos, spacious, light corridors, large wards for the sick, and the subordinate rooms for physicians and servants, arranged around airy internal courts with thorough regard to the special requirements of these buildings and their sanitary arrangements,.

For commercial traffic served the market halls, i.e., spacious covered porticos, open on two, three or on all sides. For public assemblies of the council, of certain corporations, and even of certain families on particularly important occasions loggias were erected as vaulted arcade porticos, such as partly already occurred in the middle ages. (Page 163).

The public fountains in the period of the Renaissance attained to an importance as ornaments of the public squares, similar to that formerly in the Roman state. They are in part detached buildings with prominent figure representations, in part architectural show pieces in the form of the antique triumphal arch with rich sculptures. Likewise monuments, especially bronze statues with carefully proportioned architectural substruc-
tures, were erected in great numbers as a visible expression of the strongly developed feeling for personality and the reverence for fame in the time. Even the ancient Egyptian obelisks came into honor again, when they were chiefly procured by the Roman popes and erected on great squares.

On the contrary the theatres by far did not occupy that position, which they had in antiquity. They were mostly built of wood after the ground plan of the Grecian theatre with a stage of small depth, that in part already presented a view of the city constructed in perspective with a painted background. (Figs. 272 a, b).

With the public buildings are further counted the fortifications, which experienced a thorough transformation in the Renaissance. With the introduction of heavy cannon, the high gate towers lost their former importance. In their places appeared low and broad gateway structures, which by a rusticated facing with pilaster and columnar architecture acquired a fri-

friendly, rather than a defiant expression. (Fig. 260). The mediaeval battlements possessed no further value. Bold cornices, often resting on consoles, rusticated ashlar at the angles and also in part on the wall surfaces form on these and on the bastions the most common artistic means of expression for the architecture of fortifications. Finally we have yet to mention the bridges, which likewise by the adoption of the Renaissance treatment with a tendency toward the forms of ancient bridge structures, were drawn within the circle of the beautiful.

204 VI. The Most Important Monuments.

1. Early Renaissance.

TUSCANY AND MIDDLE ITALY. -- The grand series of architectural monuments of the Italian Renaissance was commenced in Florence by the works of its first chief master and founder, the genius Filippo Brunelleschi (1372-1446). His earliest and epoch-making great work consisted in the previously mentioned erection of the dome of the cathedral of Florence. Almost contemporary with this (1421) he began the new building of S. Lorenzo as a three aisled cross basilica with rows of chapels along the sides, side aisles vaulted by domes, horizontal ceiling in the middle aisle (Fig. 240) and a low dome without drum. In his second larger church building, S. Spirito (begun 1436), likewise a cross-shaped columnar basilica, the master already exhibits a substantial advance from his system developed in S. Lorenzo. The ground plan comprises a Latin cross consisting of two rectangles of equal width. The side aisles are there extended by semicircular chapels and are carried around the nave, transepts and choir. (Figs. 241, 242). Both churches were first completed after his death. Unfortunately they remain without facades. The new ideal of the central building was carried out by him first in the old sacristy of S. Lorenzo, with which he began the erection of the church, then in a more mature form in the Pazzi chapel (1430-1443), indeed on the ground plan of a not fully developed Greek cross with low dome on a low drum, a work that in beauty of the interior, clarity of structure and treatment of the details, belongs to the noblest, that the Renaissance has produced. Brunelleschi was also the

founder of the Florentine palace style. He introduced rusticated ashlar construction, and created in palace Pitti (about 1440) an extremely impressive model for its use, though only a part of the building can be attributed to him. Furthermore also in the earliest of his secular buildings remaining to us, the upper story of palace di Parte Guelfa (after 1418), although even if the facades are still timorous, they are subdivided by pilasters, and in the portico of the Foundling Hospital (designed in 1419) he established a columnar structure with round arched arcade in strictly classical beauty. (Fig. 248).

Among his successors is first to be mentioned the Florentine Michelozzo di Bartolommeo (1396-1472); he was originally a bronze-founder, then a sculptor in stone, and finally (after 1455) court architect of the Medici in Florence. To him is due the origin of the beautiful passage to the sacristy and the chapel of the Medici in S. Croce in Florence, that still stands on the transition stage, and the new building of the monastery of S. Marco (1437-1443) with a splendid cloister and grand three aisled library hall. The master attained greater importance in palace architecture. Palace Riccardi in Florence, formerly erected for the Medici and probably in the thirties (1430-1440), is his work. (Fig. 209). His beautiful columnar court with Composite capitals is the model for countless palace courts of the 15th century.

Michelozzo's pupil and successor was Giuliano da Majano (1432-1490). Like Michelozzo he was cathedral architect in Florence, busied himself in church architecture chiefly by restorations and extensions, erected in Siena palace Spannocchi, a refined repetition of palace Riccardi of Florence, and was also engaged in Naples, as we shall see later. (Page 213).

An independent position is occupied by the learned and many-sided Leon Battista Alberti (1404-1472), one already belonging to the most fertile leaders of the Renaissance by his writings on architecture, sculpture and painting. Doubtless he stood nearer to the antique than to his contemporaries. Yet he invariably demanded an independent, i.e. a creative position for the prototypes. In the year 1446 he commenced his first church structure in the rebuilding of S. Francesco in Rimini, of

...the latter part of the 15th century, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

In the same vein, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

The church of S. Giovanni in Vanzo was commenced in 1469, and existing only in ruins, as far as the first time based on a new Greek cross. In S. Andrea there he established a model for single aisled churches with wide aisles and a Gothic-arched vault (Fig. 244), and a portico with red brick.

giving the entire height of the interior, on which we find again the classical system of the temple facade. (Fig. 243). For S. Maria Novella in Florence he designed for the Gothic building the classical facade with the pediment already mentioned as in Fig. 146. Whether the design for the facade della Cancelleria in Rome, merely attributed to him, was by him is not known.

...the latter part of the 15th century, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

...the latter part of the 15th century, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

...the latter part of the 15th century, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

...the latter part of the 15th century, the style of the architecture was still in the same vein as in the 14th century. In the same vein, the style of the architecture was still in the same vein as in the 14th century.

which the but partially executed facade in the lower story is imitated from the arch of Augustus in Rimini. In the same year he began palace Rucellai in Florence, whose erection he entrusted to Bernardo Rossellino. (According to recent investigations, this palace must certainly belong to Rossellino). In this structure Alberti undertook an advance, fruitful for the further evolution of the Renaissance, when he allowed the rusticated ashlar to recede and subdivided the facade by pilasters set above each other in the Roman arrangement. (Fig. 217). The church of S. Sebastiano in Mantua was commenced in 1459, now existing only in ruins, he for the first time based on a pure Greek cross. In S. Andrea there he established a model for single aisled churches with wide side chapels and a coffered tunnel vault (Fig. 244), and a portico with pediment occupying the entire height of the interior, on which we find again the classical system of the temple facade. (Fig. 232). For S. Maria Novella in Florence he designed for the Gothic building the incrustated facade with the volutes already mentioned on page 198. Whether the design for the palace della Cancelleria in Rome, recently attributed to him, was by him is not yet ascertained.

Alberti's pupil, Bernardo Rossellino (1409-1464), was chiefly employed in Florence as a sculptor in stone. From 1460-1463 and in the service of Pope Pius II as architect of the city of Pienza, named after him, he erected the facade of the cathedral (page 138) and palace Piccolomini, whose facade is entirely arranged on the system of palace Rucellai in Florence.

Among the remaining masters of the Florentine early Renaissance, Giuliano da Sangallo (1445-1516) occupies a prominent place. He was cathedral architect in Florence and finally even the leading cathedral architect of the church of S. Peter in Rome. His little church of Madonna delle Carceri in Prato, he erected in 1485-1491 as a central structure with a central dome and four tunnel vaulted cross arms. (Fig. 245). In its proportions it is a simple and noble creation with the happiest effect, that has frequently found imitations in modern country chapels. Likewise the beautiful octagonal sacristy of S. Spirito in Florence (1488-1492) was treated on the central sys-

system by Giuliano da Sangallo. Of his palace buildings, palace Gondi (1490-1498) is that best known on account of its magnificent columnar court with the picturesquely inserted stairway. (Fig. 221). For the grand palace Strozzi (Fig. 246), which was begun in 1489, the master furnished a model. His part in the execution itself is not yet determined. As its chief master is rather mentioned Benedetto da Majano (1442-1498), who also created the charming portico of S. maria delle Grazie near Arezzo. (Fig. 247). Palace Strozzi is the most impressive rusticated structure in Italy. The very effective main cornice was constructed in the year 1500 by Simone il Cronaca (1457-1503) as an enlarged imitation of a Roman cornice. By Cronaca is likewise the court of palace Strozzi, and further the noble palace Guadagni, in which the upper story forms an open loggia extending along the entire facade beneath the widely projecting roof, also San Francesco al Monte before the gate S. Miniato, a church of a mendicant Order with visible framework of the roof, whose simple beauty also surprised Michelangelo. Antonio da Sangallo (the elder; 1455-1534), a brother of the Giuliano mentioned above, in his chief work, the central structure of the Madonna di S. Biagio near Montepulciano (1513-1537), already stands on the stage of the developed style of the high Renaissance. (Fig. 248). -- The three masters just mentioned are the last representatives of the Florentine early Renaissance; in them was completed the transition to the high Renaissance.

The influence of Florentine art was expressed with particular strength in the neighboring Siena, where the early Renaissance took quite the same development. There arose a powerful leader in Luciano da Laurana (died 1479), the creator of palace Prefettizio in Pesaro (begun before 1465), on which for the first time the window enclosures are treated as pilasters with entablatures, and the famous ducal palace at Urbino (after 1466) with a columnar court of extremely noble design. Laurana rejected rustication in favor of a stately architectural subdivision. More purely than all his contemporaries did he comprehend the classical expression of art and bring it out in his works.

UPPER ITALY. Here the traditions of Gothic had an infinitely greater effect than in Tuscany and middle Italy. Still at about the end of the 15 th century (1487) were architects called from the North to Milan for advice to the masters carrying on the erection of the cathedral. And yet the refreshing breeze of the new spirit makes itself perceptible on Lombard soil in the entire art life. It is particularly noteworthy, that here, where Romanesque art was so deeply rooted in the popular feeling, many masters found the way to the Renaissance in the return to early mediaeval art forms. Romanesque columnar galleries again appeared (Fig. 249) with the characteristic corner leaves on the bases of the columns, yet with capitals, that already belong to the new treatment of the forms. Thus in upper Italy was completed the transition from the middle ages to the Renaissance in a peculiar style, prevailing until the end of the 15 th century, with combined classical and Gothic motives having a rich picturesque effect and a strong charm in the treatment of details. In the entire first half of the 15 th century it still bears a predominant Gothic character; then the harmonious keynote of the Renaissance ever more strongly appears, until at the end of the century it acquires entire clarity and purity.

The first important works of the Renaissance in Milan are referred to a Florentine, Antonio Averlino, named Filarete (1410-1469), who was called by duke Francesco Sforza to erect a castle there (1451). The parts of the structure erected by him no longer exist. Yet his chief work, the Great Hospital (Ospedale Maggiore), of which indeed only a portion was executed by him, affords evidence of his activity. Filarete, the inspired adherent of classicism and expressed enemy of Gothic,* entered into a compromise with it as a concession to Lombard taste, when he employed the pointed arch on the windows, certainly covered by the most charming Renaissance ornaments. (Fig. 215).

* Filarete about 1460 said of the Gothic: -- "Accursed be he that invented this blunder; I believe that only a barbarous people could have brought it to Italy".

About the same time the church of Certosa near Pavia (page 132) received its external architecture in Renaissance forms,

yet with many reminiscences of Romanesque art. The magnificent cloister with small marble columns on attic bases with corner leaves and with arches and cornices of terra cotta (Fig. 249) belong to the best works of Lombard early Renaissance. A show piece of the rarest kind is the famous marble facade of the church, on which were engaged a great number of the most important sculptors, under the lead of Giovanni Antonio Amadeo (or Amadeo) from 1474 onward. In its transcendent wealth of separate statues, relief panels and minor sculptures of all kinds, it appears like a colossal marble wall covered by representations. (Fig. 250).

On the cathedral at Como, the facade was executed in 1460-1478 in the Lombard mixed style between Gothic and Renaissance; then the sides of the old Gothic structure received facings in pure early Renaissance forms by the brothers Tomaso and Jacopo Rodari. The choir, transept and dome structure (begun 1573) already stand on the last stage of the transition to the high Renaissance.

About the end of the 15th century, there appeared in upper Italy a powerful revolution, which was introduced by the beginning of the activity of a great master of the first rank, Donato d'Angelo, called Bramante (1444-1514), a pupil of the already mentioned Laurana in Urbino, and born in a village near Urbino. Bramante was one of those powerful and many-sided Renaissance masters, whose ideas tended to grandeur, and who was gifted with a comprehensive view of the whole and an unusually excellent feeling for the effect of the interior, for the harmony of the structural masses, their subdivision, and for noble and beautiful proportions. Only the first time of his independent creation, of his development belongs to Molai (until 1499). In the year 1470 his activity in Milan commenced. His first work is the present transepts of the church S. Maria presso S. Satiro, built on a very limited area, that he covered by a central dome and two low tunnel vaults, for his characteristic conception of the choir facade, as well as the charming sacristy (Fig. 222), treated as a pure central building. In 1492-1499 he erected the choir, transepts and dome of S. Maria delle Grazie in Milan and the arched portico of S. Ambrogio. Also outside Milan several church buildings are referred to

German in his and also easily in execution. In this design he always gave the preference to the canonical building over the basilican type. We meet him again later in Rome, as the second founder of the Milan Renaissance there. Yet already during his Milanese period, his influence was so great, that he gave his own stamp to the entire art of upper Italy. (German: "so stile").

Next to Milan the Renaissance and especially city of the last century, found in the Renaissance an important part of the art of upper Italy. Still in the 15th century it was under the strong reaction of the Gothic. Even at the end of the century (about 1480) was erected a new structure (St. A. Ambrogio) entirely in the Gothic style. The early Renaissance was expressed itself chiefly in additions and the rebuilding of older churches. So much was important in the palace architecture. We have already referred to the open around passage as about both sides of the streets (about 1480); they impart to the view of the city an unusually friendly appearance. As in Milan, here also the old stone architecture is transformed in to brick, whose form the present assumes an elegant gracefulness. The earliest type of the Milan Renaissance palace of Bologna is represented by palace Isola (about 1480), on which the pointed windows of the original story are flanked by two red pilasters. An expanded Renaissance treatment is shown by palace Fava (1488) and palace Ravallone (about 1480), on which on the ground stories are exceptionally wanting, and whose facade is entirely executed in cut stone. Indeed in this case on the ground floor of the different stories as diamond panted arches. The windows are enclosed by finely decorated pilasters. The centre of the two palaces last mentioned are connected with the most beautiful columnar courts of the early Renaissance. According to the series of forms before the Renaissance (1480-1520) belongs here. (Germ. Zeit.).

In Venice the Gothic held its place longest. The architects were also mostly sculptors, and in that work city as evidenced by its commerce, they retained unaltered the picturesque entrance in the walls and the splendid detail treatment of the Gothic expression of form. First in the last quarter of the

Bramante in plan and also partly in execution. In their design he always gave the preference to the central building over the basilican type. We meet him again later in Rome, as the actual founder of the High Renaissance there. Yet already during his Milanese period, his influence was so great, that he gave his own stamp to the entire art of upper Italy. (Bramantesco stile").

Next to Milan the influential and splendid city of the learned, Bologna, formed in the Quattrocento an important part of the art climax of upper Italy. Still in the 15th century it was under the strong reaction of the Gothic. Even at the end of the century (about 1480) was erected a new structure (S. A Annunziata) entirely in the Gothic style. The early Renaissance expressed itself chiefly in additions and the rebuilding of older churches. So much more important is the palace architecture. We have already referred to the open arched passages along both sides of the streets (page 198); they impart to the view of the city an unusually friendly appearance. As in Milan, here also the cut stone architecture is transformed into brick, whose form treatment assumes an elegant gracefulness. The earliest type of the numerous Renaissance palaces of Bologna is represented by palace Isolani (after 1453), on which the pointed windows of the principal story are flanked by fluted pilasters. An expressed Renaissance treatment is shown by palace Fava (1483) and palace Bevilacqua (begun 1481), on which the arched porticos are exceptionally wanting, and whose facade is entirely executed in cut stone, indeed in rustication with careful faceting of the different stones as diamond paneled ashlar. The windows are enclosed by richly decorated pilasters. The courts of the two palaces last mentioned are counted with the most beautiful columnar courts of the early Renaissance. According to the series of forms palace Fantuzzi (1517-1522) belongs here. (Fig. 251).

In Venice the Gothic held its place longest. The architects were also mostly sculptors, and in that world city so enriched by its commerce, they rejected unwillingly the picturesque openings in the walls and the splendid detail treatment of the Gothic expression of form. First in the last quarter of the

15 th story the Lombardi, an artistic family originating at Carona on lake Lugano, introduced the Renaissance forms into Venice, certainly at first with a predominating decorative conception. Pietro Lombardo (died 1515) built after 1481 the beautiful palace Vendramini-Galeghi * (Fig. 252), and with his two sons Antonio (died 1516) and Tullio (died 1532), from 1480-1489 the splendid little church S. Maria de' Miracoli, whose facade is subdivided by orders of pilasters into two stories and terminates with a great semicircular arch.

** The building is dated with the year 1481 and the name of Pietro Lombardo. It was first completed about 1509. But on the city plan of the year 1509 it is still wanting. The plan and the commencement of the structure have in recent times been attributed to Moro Goducchi.*

In the remaining cities of upper Italy are crossed Lombard, Venetian and also in part Tuscan influences. Verona obtained by the important Fra Giocondo * (1433-1519) its elegant palace del consiglio (after 1476), that just like the loggia del Consiglio in Padua (after 1493) has in its lower story an open portico with an extremely noble treatment. In Brescia was commenced in 1492 the impressive palace Comunale, whose ground story contains an open portico, after the Lombard style and occupying more than half the width of the facade. The church S. Maria de' Miracoli there (after 1480) is a central building designed after Venetian models (Greek cross with four rooms in the angles), that on the exterior employs orders of pilasters with magnificent sunken arabesques and round arches as the upper terminations of the walls and candelabra columns in the interior, that rise from acanthus leaves and are charmingly decorated by natural foliage. (Fig. 253).

** Besides Bramante, Fra Giocondo was perhaps the greatest architect of his time in Italy. He first published again in 1511 the five books of Vitruvius.*

ROME AND LOWER ITALY in the 15 th century stand under the influence of Tuscan art and that of upper Italy. Most of the popes were favorably disposed toward humanism and called foreign artists to their court. Among these we find the learned Alberti, even if rather as an impelling force than as an exec-

and Giovanni de' Medici. About the middle of the 15th century arose in Rome the first architectural works in the new style. The splendid period of the Roman early Renaissance falls in the reign of the Art-inspired Pope Sixtus V. (1585-1590). His chief master was Bramante da Novara (1493-1547). To him is due or a great part of the Vatican (Sala Terrena) and the church of S. Agostino (1538-1540) in Rome; besides he led in the erection and the restoration of the numerous other churches in the capital. Probably also is to be referred to him the palace of Venezia (after 1540), which has a facade with very little expression, but it presents something noteworthy in the beautiful court (Piazzetta), where for the porticoes are used with entablature half columns are employed instead of columns, after the model of the Colosseum.

From this time (after 1585), to the Roman high Renaissance. It not earlier, dates a principal creation of the Italian Renaissance, Prince Gasparino in Rome. This noble structure was formerly attributed to Bramante, but he first came to Rome in 1546, after the Cancellaria had been substantially completed for at least three years. Recent investigations are inclined not to ascribe the design to the great Bramante. The building actually appears as the highest development of the Florentine style proceeding from Palazzo Medici, already entering into the high Renaissance. The facade shows in the second story a rustication with round arched windows, in the two lower stories a blind Corinthian pilasters with the subordinate cornice and windows with horizontal caps, in divided and reserved.

The construction with its open portico in two stories is the last grand column court in Rome.

Into Rome the Renaissance found entrance about the middle of the 15th century, indeed chiefly by the activity of masters from Florence and those Italy. Giuliano de' Medici (1478-1503) erected (after 1478) the noble side facade, an arch with pilasters, high frieze and attic between two slightly towered; he was also engaged on Palazzo Nuovo (after 1480). Before of

executing architect, his pupil and colleagues Bernardo Rossellino and Giuliano da Sangallo. About the middle of the 15 th century arose in Rome the first architectural works of the new style. The splendid period of the Roman early Renaissance falls in the reign of the Art-inspired Pope Sixtus V. (1471-1484). His chief master was Giacomo da Pietrasanta (died 1495). To him is due or a great part of the Vatican (Papal palace) and the church of S. Agostino (1479-1483) in Rome; besides he led in the erection and the restoration of the numerous older structures in the capital. Probably also is to be referred to him palace di Venezia (after 1451), which has a facade with very little expression, but it presents something noteworthy in its beautiful court (Fig. 254), where for the porticos square piers with engaged half columns are employed instead of columns, after the model of the Colosseum.

Under Innocent VIII (1484-1492) was completed the transition to the Roman high Renaissance. From this time (after 1486), if not earlier, dates a principal creation of the Italian Renaissance, palace Cancelleria in Rome. This noble structure was formerly attributed to Bramante, but he first came to Rome in 1499, after the Cancelleria had been substantially completed for at least three years. Recent investigations are inclined to ascribe the design to the great Alberti. The building actually appears as the highest development of the Florentine style proceeding from palace Rucellai, already entering into the high Renaissance. The facade shows in the ground story rustication with round arched windows, in the two upper stories being Corinthian pilasters with the appropriate cornices and windows with horizontal caps, in dignified and reserved projections and members exhibiting a refined feeling for style. The construction with its open porticos in two stories is the last grand columnar court in Rome.

Into Naples the Renaissance found entrance about the middle of the 15 th century, indeed chiefly by the activity of masters from Florence and upper Italy. Giuliano da Majano (page 205) erected (after 1485) the noble gate Capuana, an arch with pilasters, high frieze and attic between two stately towers; he was also engaged on Castello Nuovo. (Page 132). Pietro di

214 Martino from Milan executed between 1455 and 1457 the festal hall of this castle, in which the details already appear in the purity of ancient Roman forms, and built the two story triumphal arch of king Alfonso I, greatly esteemed for its decorations in relief, near Castel Nuovo, completing the great show gate between 1461 and 1470. To the finest works of the Italian Renaissance belong the decorations of the crypt of the cathedral, executed by the Comacines, i.e. sculptors from Como in upper Italy, which has the form of a three aisled subterranean church and is adorned by ornaments of extreme richness. Of the buildings of Giuliano da Sangallo have been preserved in Naples only unimportant remains. The palaces, cloisters, additions and rebuildings of the second half of the 15th century are chiefly under Florentine influences.

SICILY, aside from few exceptions referred to foreign masters, still remained in the entire 15th century faithful to the Gothic style, and like lower Italy, even in the 16th century, it no longer appeared with important buildings.

2. High Renaissance.

With the beginning of the Cinquecento commenced the best period of the Renaissance. (Page 173). Previously had the attention been devoted to the substantiality of the architectural appearance and to the orderly arranged organism of its members. Not by unnecessary and merely accidental ornamental work should its effect be influenced. The decorative accessories, so much favored in the Quattrocento, were therefore restricted in their limits. The chief weight was placed on a correct subdivision of the architectural masses, on the harmonious proportions of the stories and the beautiful combined effects of the architectural forms. The columnar orders were more strictly treated in the antique sense, all members on columns and pilasters, on the cornices, windows and the like, were made in bolder relief, carefully profiled and more carefully drawn. The columns were restricted in their applicability and more and more lost their function as free supports in contrast with the piers, richly subdivided by engaged columns and pilasters, which could be graduated at pleasure according to their functions. The wide structures of porticos and churches with their

245 domes and vaults, the general spaciousness appearing in even the dwellings of the citizens, now came to its highest development in regard to beauty of internal creations and symmetrical proportions of architectural members. With an incomparable power of treatment of form, the great masters dominated space and materials, construction and forms, just as they generally practised all formative arts in a masterful manner.

ROME AND MIDDLE ITALY. -- The high Renaissance finds the principal scene of its evolution in Rome. The eternal city seems in architecture and the formative arts to show the dawn of a new age with the splendor of the former Roman imperial period. The role of leader was assumed by the great Bramante of Urbino. (Page 209). In the year 1499 he commenced his epoch-making activity in a little domed structure in the cloister of S. Pietro in Montorio, erected in the ground form of the temple of Vesta at Tivoli, with a Doric lower story crowned by a balustrade, and a smaller story with a dome, the whole a noble work with a distinguished perspective effect. Then he took up the rebuilding and new constructions of the Vatican palace, which had previously consisted of stuccoed structures. The court (cortile) in S. Damaso by him, and with the famous loggias painted by Raphael, afford particular interest (the uppermost of the four stories was by Raphael).

About 1505 Bramante received from Pope Julius II the greatest commission, that an architect had ever obtained, the new building of the church of S. Peter at Rome instead of the ancient basilica of S. Peter. (Volume 1, page 159). The most famous architects of the high and late Renaissance took part in this. * Bramante's design shows an entirely symmetrical central plan with four cross arms terminating in semicircles after the Lombard style, a mighty principal dome, four small domed rooms lying in the angles of the cross arms, four towers at the angles, the four apses of the cross arms projecting from the rectangles being treated as entrance halls. Thereby Bramante designed an internal creation of perfected harmony and an incomparably grand effect, such as no building in antiquity could exhibit in equal measure. Thenceforth the Greek cross passed for the most perfect form of the Christian House of God.

With the construction of the four piers of the dome, the vaulting, the arches and pendentives, and the partial execution of the superstructure from the southern arm of the cross and one of the side arms, Bramante fixed the internal proportions of the church of S. Peter. Its elevated beauty shows Bramante as a master, in whom the laws of art received their highest fulfillment in the same sense, as the case previously in the best ages of the antique. The marble facing of the Casa Santa in the cathedral of Loreto (1510) and the but half executed design for the palace Apostolico there, as well as the majestic harbor castle of Civita Vecchia are still today eloquent witnesses of his latest style, matured under the influences of the monuments of Rome. By them Bramante exercised a quite overpowering influence upon all his contemporaries and the evolution of architecture. Of the numerous churches directly to be referred to his school, S. Maria della Consolazione in Todi is the most important. (1508-1524).

* The architectural history of the church of S. Peter (Fig. 255) shows the following masters to be the leading architects:—Bernardo Rossellini began a new building already under Nicholas V. (1452-1454), which was carried further under Paul II, 1470-1472, but then stopped. In April, 1506, commenced the activity of Bramante. He designed a new plan in the ground form of the Greek cross with equal arms and with a dome, using for the construction a portion of the existing foundations, erecting the dome piers with their vaults as well as a portion of the southern cross arms. Under Bramante Peruzzi and Antonio da Sangallo the Younger were engaged from the beginning of work on the design (in the year 1505) onward. After Bramante's death (March 11, 1514), Fra Giocondo and Giuliano da Sangallo assumed the leadership for a short time. Then (from Aug. 1, 1514) it passed to Raphael, who acted as the principal master until his death (1520) and carried on the building further in the sense of Bramante. From 1520 to 1524 all building activity ceased. Paul III energetically took it up again and entrusted the lead to Antonio da Sangallo (the Younger). He rejected the pedestals of the internal piers, raised the floor about 10.5 ft. and thus formed the Vatican grottos. His model is a

still preserved in S. Peter. Shortly before his death (Aug. 3, 1546), he vaulted the southern and eastern arms of the apses. Under Antonio Baldassare, Peruzzi worked as assistant; a year preceding his death he was also appointed besides Antonio as a leading master of equal rank (after Jan. 1536). From Jan. 1, 1547, the continuation of the building lay in the hands of the aged Michelangelo (then 72 years old). He held fast to the general design of Bramante, but simplified it and intended to arrange before it a portico with a free colonnade. His principal attention was devoted to the dome, in vaulting which he went beyond Bramante's design. At his death (Feb. 18, 1564) only the drum was constructed. His successor was Vignola, to whom are due the small subordinate domes at the rear, planned by Vignola. After him (1573) the leadership came to Giacomo della Porta (until 1604). He carried into reality the grand project of Michelangelo for the dome in the years 1588-1590.

The imposing general impression of the central design, complete in itself, was only left to the building for a brief time. The clergy contended, that in view of the traditions for many centuries in Western church architecture, and particularly because a portion of the ancient basilica of Constantine had not been built over, whose consecrated soil was thus devoted to secular uses, the Greek cross should be extended to the Latin. Carlo Maderna, leader of the building after 1604, by the command of Pope Paul V, with Giovanni Fontana, was compelled to add the existing nave (begun 1607) with the vestibule. The dedication occurred in the year 1626. From 1629 onward Lorenzo Bernini labored on the structure. He led in the internal composition, decided to erect two bell towers at the sides of the facade, but fortunately had to drop this plan and to tear down the tower, commenced in 1638. (1647). But otherwise is due to him the credit for improving the general design by the erection of the elliptical double colonnades (1655-1669), by which Bernini partly removed Maderna's errors. (Volume 3).

Bramante's favorite pupil and successor in the building of the church of S. Peter was Raphael Santi (1483-1520), the famous painter. His earliest work is the little and finely proportioned church S. Eligio degli Orefici in Rome (begun 1509),

in which he described briefly on his instructions. In the villa
the four walls two ornamental side wings, Raphael erected the
group of the elevated rooms and single, nobly restrained
as a great master of the high Renaissance he
There he introduced two substantially new
renewed innovations, a large raised vestibule and an arcade,
where the architect rests on two short pieces of the architec-
ture of the column. (Fig. 271). This building accounted for
Italian villa a typical farmhouse like that of S. Peter for
churches. Of the other buildings of Raphael are yet to be men-
tioned the magnificent chapel built in the church of S. Maria
del Popolo at Rome (1518) and in Florence since his death
(1520-1524), in which the window arches have pillars in
the lower, and half columns in the upper story; the alternati-
on of square and pediment arches above them first occurs here.
(This alternation is certainly proved already in the range by

(Raphael)

Raphael's most important work was Giulio Romano (1498-1546),
likewise a very important painter, employed first in Rome and
later in Urbino. His chief work is palace del Te (after 1521),
the three stories house of Giulio Romano before Raphael, an exten-
sive building of rectangular ground plan situated about a great
court with a splendid loggia on the garden side, the interior
decorated in the most splendid manner. At his church S. Bene-
dict located south of Urbino, he retained the basilican form
of the ancient church and the colored glass windows in the mid-
dle. The church was built with a nave at a distance of
with a circle of capitals around the semi-circular apse, before
which he placed an octagonal domed space.

The church of S. Maria della Pace in Rome (1517-1521) was under the strong influence of Bramante, a
under whose lead he was employed on the church of S. Peter (a
native city of Rome, early in the sixteenth century in the
are also designs for the buildings of S. Petronio etc.) and in

in which he depended entirely on his instructor. In the villa Farnesina (1509-1511), a loggia structure arranged in rectangular form with two projecting side wings, Raphael erected the classical model of a dignified summer house with the happiest grouping of the elongated rooms and simple, nobly restrained architecture. As a great master of the high Renaissance he proved himself in the design and partial erection of villa Madama (begun 1515). There he introduced two subsequently much employed innovations, a three aisled vestibule and an arcade, where the archivolt rests on two short pieces of the architrave resting on columns. (Fig. 271). This building acquired for Italian villas a typical importance like that of S. Peter for churches. Of the other buildings of Raphael are yet to be mentioned the magnificent chapel Chigi in the church of S. Maria del Popolo at Rome (1512) and in Florence palace Pandolphini (1516-1529), on which the window enclosures have pilasters in the lower, and half columns in the upper story; the alternation of segmental and pediment caps above them first occurs here. (This alternation is certainly proved already in drawings by Bramante).

Raphael's most important pupil was Giulio Romano (1492-1546), likewise a very important painter, employed first in Rome and later in Mantua. His chief work is palace del Te (after 1525), the famous pleasure house of Gonzaga before Mantua, an extended building of rectangular ground form arranged about a great court with a splendid loggia on the garden side, the interior decorated in the most splendid manner. At his church S. Benedetto located south of Mantua, he retained the basilican form of the ancient church and the pointed cross vaults in the middle aisle, continuing the vaulted side aisles as a choir aisle with a circle of chapels around the semicircular choir, before which he placed an octagonal domed space.

His contemporary, the classically designing Baldassare Peruzzi (1481-1537) was under the strong influence of Bramante, under whose lead he was employed on the church of S. Peter (p (page 216). He was very active in architecture, partly in his native city of Siena, partly in Montepulciano, in Bologna (there also designs for the beginning of S. Petronio etc.) and in

Rome, where he created (after 1535) his chief work, palace Massimi alle Colonna with a beautiful portico and magnificent court. (Fig. 256). Also the cathedral of Carpi (after 1513), an imitation of S. Peter in Rome, is attributed to him. In the Uffizi of Florence are still preserved autographic drawings from designs by the master, evidencing the grand architectural ideas, whose realization unfortunately was not permitted to him.

One of the chief pupils of Bramante was further Antonio da Sangallo (the Younger; 1483-1546), an architect highly esteemed in his time, even if less an epoch-making one. He was the leading architect of the church of S. Peter (page 216), employed in the erection of several Roman churches and chapels, creator of some palaces (Zarchioni Baldassari, Sachetti etc.). His chief work is the vast palace Farnese in Rome (begun before 1514), the effect of whose facade is reduced (Fig. 257) by the closely set window axes and small windows, but is again improved by the magnificent main cornice constructed by Michelangelo. Very beautiful is the triply arched vestibule (Fig. 258), spanned by a coffered tunnel vault, and the court, whose two lower stories are imitated from the theatre of Marcellus; the upper story is by Michelangelo (after 1517). In this court we have the most perfect example of a court with piers treated in purely antique forms.

Florence had in the time of the High Renaissance in comparison with Rome only the importance of a provincial city. Architectural activity was restricted within modest limits in comparison to those of the preceding period. But the masters preserved their traditions and created in several palaces impressive and finely designed works. At their head stands Baccio d'Agnolo (1462-1543) with palace Bartolini near S. Trinita, the villa-like palace Giustini and the pleasing villa Castellani on the Bellesguardo. His two sons, Giuliano and Domenico, built palaces Ceramelli and Buturlin, the former recalling palace Farnese, the latter palace Guadagni. Giovanni Antonio Dosio (1533-1580) follows in his extremely noble palace Larderel (1580) the main lines of palace Bartolini, but belongs with his other works to the late Renaissance.

UPPER ITALY in the high Renaissance became the scene of new

artistic advances, and indeed is it here the eastern portion, that is quite prominent in the cities of Padua, Verona and Venice.

In Padua was employed the Veronese Giovanni Maria Falconetto (1458-1534), by whom is the palace Giustinani (1524) etc., distinguished by cheerful grace with magnificent columnar architecture. The greatest building of the city is the church of S. Giustina (Fig. 231), planned in colossal dimensions, begun in 1521 after the plans and under the lead of the Venetian Alessandro leopardi (died 1522). The ground form is a Latin cross, covered (under the influence of S. Marco in Venice, supreme in this region) by domes over the crossing and the three short cross arms, low domes over the nave and transverse tunnel vaults in the side aisles; the latter are enlarged by rows of chapels. On the like colossal scale is arranged the cathedral, built in 1551-1557 by Andrea da Valle and Agostino Righetto, planned like S. Giustina, but the nave was later interrupted by a short transverse aisle, the side aisle being treated as domed rooms side by side.

Verona affords very great interest through the works of Michele Sanmicheli (1484-1559). This great master was first engaged in Rome as pupil of Bramante, but later returned to upper Italy. There he continued in the last manner of Bramante, while he combined the great monumental tendency and the refined feeling for beauty with an enjoyment of gay ornamental work in upper Italy. His earliest palace structure in Verona must be the noble palace Bevilacqua, whose facade in the ground story (as almost always with him) is subdivided by rustication in connection with projecting pilasters, in the upper story by fluted columns. (Fig. 259). On palace Canossa the entire ground story is treated as an open portico. The impressive palace Pompeii has frequently become a model for later buildings with its bold rustication (without pilasters) in the lower story and the great arched windows between columns in the upper story. Of the church buildings of Sanmicheli, the charming chapel Pellegrini near S. Bernardino at Verona (begun before 1554), frequently harmonizing in the design with the Tempietto in S. Pietro in Montorio (page 215), the famous great

about 1500 of the Venetian Republic, also by him but only a
 and after his death. Giamontelli's artistic career takes as
 the architect of the fortifications of the Republic of Venice,
 in whose service he had charge of the fortifications of the
 city as far as the Venetian lagoon. How well he understood also to
 give to the Venetian fortresses a truly artistic effect may be
 seen on the magnificent city gates at Venice, among which the
 Gate Nuova (1558-1560), Gate S. Marco (1561) and the Gate S.
 Marco (1560), built 1562-1567, possess high artistic
 interest. Just on these appears with what refined feeling of
 the matter, he understood how to employ the beautiful beauty of
 the Venetian style, fused by the contact with the Venetian art.
 The Venetian Venice further received from Giamontelli the two-
 sided fortifications with the castle on the side (1564), and
 the noble palace situated on the Grand Canal (about 1560), who-
 as classical architecture of the columns and pilasters denotes
 the character of the Venetian palace style. But the chief master
 of the Venetian Renaissance is the Florentine Jacopo Tatti-
 ni, called Sansovino (1496-1570), an artist highly gifted as
 sculptor and architect, brought up in Florence and Rome, 1560-
 with a spirit of grandeur, but when he came to the Venetian style
 this was owed to him an important artistic position (after
 1567), showed himself not selflessly strong to refuse to the
 concrete measure the strong decorative tendencies resulting from
 the early Renaissance. His style of ornamentation is visible
 in the S. Mark's Basilica in Venice, on which he
 executed the beautiful frieze of clouds and the main capital.
 (The window architecture was by Palladio). Among Sansovino's
 church buildings, S. Giorgio de' Greci (1565) is raised the most
 important, a single aisle design, spanned by a tunnel vault,
 whose centre is occupied by a dome. As his earliest palace
 the Roman school appears with its aim for monumental effect;
 it has rustication, in the lower stories being double columns
 with spaces placed between them. Soon afterwards (1565) he is
 on the Piazza, in which the antique column architecture is
 united in one form with the spirit of the Italian Renaissance.

round church of Madonna di Campagna, also by him but only erected after his death. Sanmicheli attained particular fame as the architect of the fortifications of the republic of Venice, in whose service he had charge of the fortifications of the mighty state as far as Cyprus. How well he understood also to give to the defiant fortresses a truly artistic effect may be seen on the magnificent city gates at Verona, among which the gate Nuova (1533-1540), gate S. Zeno (1541) and the gate Stuppa or Palio (Fig. 260), built 1542-1557, possess high artistic interest. Just on these appears with what refined feeling of the master, he understood how to employ the peculiar beauty of the Grecian-Doric style, indeed by the contact with Grecian art.

227 The capital Venice further received from Sanmicheli the imposing fortifications with the castle on the Lido (1544), and the noble palace Grimani on the grand canal (about 1550), whose classical architecture of the columns and windows denotes the climax of the Venetian palace style. But the chief master of the Venetian high Renaissance is the Florentine Jacopo Tatti, called Sansovino (1486-1570), an artist highly gifted as sculptur and architect, brought up in Florence and Rome, likewise a pupil of Bramante, but when beside his contemporary Titian was opened to him an important artistic position (after 1527), showed himself not sufficiently strong to reduce to the correct measure the strong decorative tendencies reacting from the early Renaissance. His style of Ornamentation is visible in Fig. 261 from palace del Municipio in Brescia, on which he executed the beautiful frieze of cupids and the main cornice. (The window architecture was by Palladio). Among Sansovino's church buildings, S. Giorgio de' Greci (1550) is indeed the most important, a single aisled design, spanned by a tunnel vault, whose centre is occupied by a dome. As his earliest palace structure passes palace Corner della Grande (1532), on which the Roman school appears with its aim for monumental effect; it has rustication, in two upper stories being double columns with arches placed between them. Soon afterwards (1536) he began the library of S. Marco, that famous long state building on the Piazzetta, in which the antique columnar architecture unites in one gush with the spirit of the Italian high Renais-

Renaissance in the day Venetian composition. At the same time
 Giovanni built beside the library the house (former villa) in
 the town of S. Marco the graceful house (1540), a palace
 as a magnificent work of art, that certainly is more a
 prominent by the sculpture than the architecture. Giovanni
 was also engaged in the erection of the beautiful church of S.
 Salvatore, completed in 1584, which was previously designed in
 1508 by Giorgio Vasari under the clearly recognizable influ-
 ence of S. Marco (volume I, page 147); Giulio Lombardi was the
 principal master in charge in 1507.
 The library of S. Marco strongly influenced the later master-
 ship. Vincenzo Bonazzi (1588-1678) repeated still at a time,
 when the architecture of the Renaissance had already passed
 the last stage of its development, the architectural motive in
 the structure of the House Bonazzi (1674), whose effect he
 originally lessened by the addition of a third story.
 Of Giovanni's pupils there comes as the most important Al-
 bano (1677-1707), who received the master's seal
 and on the grand canal.
 Another master of the eighteenth century was Francesco
 the Italian Renaissance in the canonical model in Bonar-
 etti (1717-1787). Born in Genoa in the lower valley of the
 River, and trained in Florence in painting and sculpture, Fran-
 cesco commenced his second artistic activity in the
 city on the Arno. Until the year 1744 he was chiefly in Flo-
 rence, but was repeatedly and indeed for a longer time was en-
 gaged in Rome and chiefly in Bologna; then he returned to Rome
 and remained there until his death.
 Michelangelo is the last great architect of the Italian Ren-
 sance, who still belongs to the entire last period, even
 and his power in Italy, and seems to set new paths, which
 when its entire future development was restricted. He accom-
 plished the highest in all times art. In his works belonging
 to sculpture and painting is manifest a new movement, in which
 every ordinary form is increased to the sublime, if this was
 attained by the effect of his own hand. In his works
 Michelangelo's greatness is evident in the human form.

Renaissance in the gay Venetian conception. At the same time Sansovino built beside the Library the Zecca (former mint), to which he gave a somewhat more severe and earnest form in accordance with its purpose, and on the other side as a concealment of the tower of S. Marco the graceful Loggetta (1540), a marble portico as a magnificent show piece, that certainly is more prominent by the sculpture than the architecture. Sansovino was also engaged in the erection of the beautiful church of S. Salvatore, completed in 1534, which was previously designed in 1506 by Giorgio Spavento under the plainly recognizable influence of S. Marco (volume 1, page 194); Tullio Lombardi was the principal master in charge in 1507.

The library of S. Marco strongly influenced the later masters. Vincenzo Scamozzi (1522-1616) repeated still at a time, when the architecture of the Renaissance had already passed the last stage of its development, its architectural motive in the structure of the Nuovo Procuratie (1584), whose effect he plainly lessened by the addition of a third story.

Of Sansovino's pupils, there appears as the most important Alessandro Vittoria (1525-1608), who erected the tasteful palace Balbi on the grand canal.

Another master of the highest rank was further produced by the Italian Renaissance in the phenomenal Michelangelo Buonarroti (1475-1564). Born in Caprese in the upper valley of the Tiber, and trained in Florence in painting and sculpture, Michelangelo commenced his epoch-making artistic activity in the city on the Arno. Until the year 1534 he was chiefly in Florence, but was repeatedly and indeed for a longer time was engaged in Rome and chiefly in Bologna; then he removed to Rome and remained there until his death.

Michelangelo is the last great architect of the Italian high Renaissance, who still belongs to the entire best period, gathered its power in himself, and showed to art new paths, within which its entire future development was restricted. He accomplished the highest in all three arts. In his works belonging to sculpture and painting is manifest a supermanhood, in which every ordinary form is increased to the gigantic, if this was required by the effect desired by him. And likewise in his architectural creations he appears like a titanic intellect,

which escapes from all bounds of antique and Christian tradition and matures the most strongly expressed individuality, such as architecture never exhibited before him and never after him. his eye was always directed toward grandeur, to the harmony and contrasts of parts in light and shade, of advancing and receding, of central and flanking architectural masses. Detail is for him an accessory; he only calculated on a sharply marked effect. His works were also accordingly fateful for the further evolution of architecture.

Michelangelo's activity as architect begins in the year 1516 with a design of a facade for S. Lorenzo in Florence, but whose construction was later again dropped, when he took up the works for the famous tomb of the Medici (after 1520) at this church. That is a square structure erected on a square plan and covered by a dome, with doubled pilasters and niches for subdividing the internal wall surfaces and rich sculptures, which are most harmonious with the architecture and are fused with it into an entirely unified and unsurpassed general effect. (Fig. 263). In the unfinished vestibule of the Library L. Laurenziana (1523-1526) with the interesting entrance stairs (executed in 1558 by Vasari after Michelangelo's plan (Fig. 264) is expressed a complete breach of all restraints respected by former masters.

In ROME by Michelangelo is the splendid main cornice of the palace Farnese (page 219), and from his later time (after 1561) the much discussed gate Pia, that in the general design and treatment of the details already bears all the traits of the later Barocco art. The noble architectural group of the Capitol likewise is referred to Michelangelo in the arrangement and also partly in the treatment (in 1546 was commenced the rebuilding of the palace of the Senators and the splendid double flight of steps), but it was only carried out much later and with frequent variations from his design.

The master's great work in the domain of architecture lies in his labors on the new building of S. Peter's church (page 216). He undertook to carry on the construction, when he had already entered the 72 nd year of his life. His plan shows (while retaining the ideas of Bramante) the Greek cross with

225 four apses, a mighty principal dome, and four small subordinate domes over the corner rooms, with a front portico conceived at an enormous scale, that nevertheless, in case that it had been executed, would have subordinated itself harmoniously to the overpowering effect of the main dome. The previously constructed four piers of the nucleus of the structure were externally strengthened, the apses were moved farther outward, the complicated angle structures were removed and simplified into square corner rooms. The drum (Figs. 210, 265) is internally subdivided by pilasters and externally by doubled free columns, whose aspiring motive continues in the strongly projected and tense ribs of the dome, diminished upwards, and reappears in the connecting and crowning lantern. Thereby the dome entirely loses the expression of weight. (On the construction of the dome, see page 178). To Michelangelo himself is only due the drum, and of the architectural treatment, the external covering of the outer portions of the choir and of the main piers in the interior. The dome was constructed according to his plan and model by later masters. Its effect is unequalled and imposing. Bold and sublime, it soars in majestic security and repose above the eternal city as a representation of the highest power and dignity, and as the most perfect expression found by the spirit of the high Renaissance.

3. The Late Renaissance.

In the late Renaissance (page 173) there set in with the leading masters a reaction against the subjectivism of Michelangelo, creating with the caprice of genius, that at first manifested itself as a return to the endeavor for the most perfect imitation of the antique in regard to its proportions and details, already occurring with Bramante and strengthened by Raphael, Baldassare Peruzzi and Antonio da Sangallo. We see in this a phenomenon of the intellectual life of that time of the counterreformation, which contested individual life in state and church, worked to strengthen the ancient teachings of the church, and emphasized the unconditional submission to its dogmas as the supreme basal law.

226 The character of the late Italian Renaissance was substantially fixed by two leading masters, Vignola and Palladio. They

were also learned architects as well as distinguished practical-
 architects, as evidenced on the gate and the library de-
 sign, they regarded as extraordinary, that of the "two
 and half". So much the more attention did they address to the
 one derived from the nature, "they were by artistic sense
 yet even with them the influence of architectural remained and
 visible in the search for grandeur, for powerful effect of
 the architectural manner and gradation on a colossal scale.
 These systems of half and full columns were added to facades
 in place of the wall doors. To the relief of the facades ad-
 ded thereby corresponded a structure emphasizing of the door-
 is and windows. Yet more than previously the ancient architec-
 tural forms came into use in the exterior as well as the inter-
 nal architecture. But they frequently come to a more conven-
 iently conceived mode of decoration, often applied like a pat-

tern and known Italy. -- In Rome (Rome) called V
 Virgili from his native city (1407-1478) was the leading man-
 ner. He was trained in Bologna as a painter, then at the order
 of the Vatican Academy in Rome (Rome 1478) architecture was
 and in 1480 again to Rome. There he belonged to that a
 circle of artists, which surrounded (Raphael) yet he con-
 sidered as master. In the year 1480 appeared his famous
 temple (Plan of the late architectural Orders), which exhi-
 bited great influence in later times and even to this day.
 As a result of architect he had Virgili employed on the ex-
 ternal arranged villa of Farnesina (Rome) before the
 villa del Monte (1480-1490), whose court was under study a
 enclosed the front court in a semicircle, and like the entire
 architecture of the exterior and interior makes a very distinct
 impression. (Fig. 243). His most important secular work
 was the famous Farnese castle (Rome) near Vatican (1545-1550).
 It is surrounded by a wide moat, in rectangular
 and fortified by bastions, one otherwise is a design conceived
 also the architecture of a palace, which encloses a circular
 and extremely beautiful court with a colonnade, with a ma-

were also learned theorists as well as distinguished practitioners. The unrestrained architectural treatment preferred by Michelangelo, as expressed on the gate Pia and the Library Laurenziana, they regarded as extravagancies, that offended "the good rule". So much the more strongly did they adhere to the canon derived from the antique, "they swore by antiquity alone". Yet even with them the influence of Michelangelo remained undeniable in the seeking for grandeur, for powerful effect of the architectural masses and subdivision on a colossal scale. Entire systems of half and full columns were added to facades in place of the wall piers. To the relief of the facades accented thereby corresponds a stronger emphasizing of the portals and windows. Yet more than previously the antique architectural forms came into use in the external as well as the internal architecture. But they frequently come to a more conventionally conceived mode of decoration, often applied like a pattern.

ROME AND MIDDLE ITALY. -- In Rome Giacomo Barozzi, called Vignola from his native city (1507-1573) was the leading master. He was trained in Bologna as a painter, then at the order of the Vitruvian Academy in Rome (founded 1542) undertook measurements of Roman works of the antique, went to France in 1537, and in 1550 again to Rome. There he belonged to that circle of artists, which surrounded Michelangelo; yet he cannot be termed his pupil. In the year 1560 appeared his famous manual (*Rules of the five architectural Orders*), which exercised great influence in later times and even to this day.

As a practical architect we find Vignola employed on the grandly arranged villa of Papa Giulio (Pope Julius) before the gate del popolo (1550-1555), whose portico with upper story encloses the front court in a semicircle, and like the entire architecture of the exterior and interior makes a very dignified impression. (Fig. 266). His most important secular building is the imposing Farnese castle Caprarola near Viterbo (1547-1559). It is surrounded by a wide moat, is pentagonal and fortified by bastions, but otherwise is a design completed with the architecture of a palace, which encloses a circular and extremely beautiful court with arcades, with a magnificent

main stairway and very conveniently arranged apartments. There Vignola has most happily combined the type of the fortified castle with that of palace architecture and evidently utilized suggestions obtained in France. In the year 1564 after the death of Michelangelo he became the leading architect of the church of S. Peter (page 217). Very influential in church architecture became the principal church of the Jesuits, Il Gesu (1568) in Rome. In it is clearly expressed the change in the architectural tendencies occurring in the age of the counterreformation. Men returned again to the old ritual basal form of Latin cross, but combined with it the effective form of the central building. Vignola then created in the Jesuit church a solution of the ground plan and treatment of the interior of amazing simplicity and artistic perfection. He gave to the central design four short cross arms with the width of span of the dome, lengthened the front arm to become a middle aisle, considerably wider than before, allowed this to end at the choir side in a semicircular apse, and vaulted it with a tunnel vault corresponding to the dome. But instead of the side aisles he arranged chapels. (Fig. 267). Vignola also fixed the cross section and planned the details, still kept within the conceptions of the high Renaissance, but more simple and massive. But his pupil Giacomo della Porta went considerably farther, who completed the church after Vignola's death. In the magnificent treatment of the interior and the facade subsequently designed by him is expressed a strong tendency to the picturesque in the sense of the later Barocco art. The church Il Gesu became a classical model for the churches of the 17th and 18th centuries and even influenced the church of S. Peter. The history of that church is also connected with the name of Giacomo della Porta, when he was called to erect the dome after Michelangelo's model, and thereby proved himself to be an architect of high constructive capacity. With the theorists of Rome is to be counted further Pirro Ligorio (died 1583), the builder of the splendid garden house villa Pia (about 1560), in the Vatican gardens, and the villa d'Este (after 1549) in Tivoli, famous for its unequalled park design. On the Pincio 228 the Florentine Annibale Lippi (died 1581) built the palace villa

Medici for Cardinal Medici, now the French Academy. The facade toward the city is simple, but the garden facade is surprisingly rich. (Fig. 268); it sows in the open arched portico and the rich ornamentation of the wall surfaces by antique reliefs and stucco ornaments the character of the late Roman casinos in their perfection. The building makes that dignified and cheerful impression, peculiar to the works of the school of Raphael. We see here the charming and graceful, not striving for grandeur.

In Florence Giorgio Vasari (1511-1574), a many-sided artist and deserving writer on art, stands at the head of the architects of the late Renaissance. With Vignola he designed after the ideas of the architectura-loving Pope Julius II the previously mentioned villa of Papa Giulio (page 226), and in Florence the building of the Uffizi (1560) likewise commenced by him, on which he solved in a masterly manner the difficult problems there given. Two parallel wings with imposing porticos in the ground story flank a narrow street like a court and are connected by a transverse building, which leaves an open round arched passage toward the Arno. A greater activity in palace architecture was developed by Bartolommeo Ammanati, also known as a sculptor (1511-1592). Like Vasari, he consciously became a follower of Michelangelo. On the court facade of the palace Pitti (1558-1570), certainly more stiff than beautiful, he employed rusticated ashlers and half columns in all three orders. (Fig. 269). As a more refined master he showed himself on the noble bridge of S. Trinita over the Arno, which clothes the most suitable arched span in a very happily designed architecture.

UPPER ITALY in the late Renaissance became in several places the scene of a very important artistic activity. In Bologna Sebastiano Serlio (1475-1552) published in the year 1540 his influential "Books of Architecture". Pellegrino Tibaldi (1521-1592) there continued the school of Vignola in a number of small and well arranged buildings. Likewise in Milan was this architect engaged (under the name of Pellegrini) as the creator of the charming church of S. Fedele (1539), long regarded as a classical model, and as the restorer of the cathedral facade in the late Renaissance style, that was executed after

...and one way ... though not exclusively, -- and one way ...
...The pictures and other things were ob-
...which appear like Renaissance success-
...the pointed forms of the domes and
...The ... was a powerful and refined
...in the creation of interiors and in architectural
...In the east part of ... further across in the 15th
...century a chief master of the Renaissance, the great Andrea
...of Vicenza (1460-1530). In him we become acquainted
...with the most inspired and strongly convinced representative of the
...which Italian architects of the 15th century and of
...the entire Renaissance period have to show in their series. He
...before him had studied with such devotion and thorough-
...ness the architectural works of the ancients and so deeply ren-
...dered into their nature, and none had understood how to em-
...body the spirit of the later time classically in their treat-
...ment of forms with such sovereign domination, like him. In con-
...trast to Vitruvius, who like the Roman architects generally of
...the high and late Renaissance preferred after construction, Ren-
...aissance cultivated column architecture. In the year 1470 he
...described at Venice his "Four Books of Architecture", by which he
...has exerted a deep influence upon the evolution of architectu-
...re, effective until our own times. Palladio was just as strong
...in the theory as he was free and independent in creation in p-
...ractice. He never ended with an ornamental effect, but effec-
...wed himself only to be guided by the arrangement and the func-
...tion of proportions. He was so full of artistic power, that he
...filled his works, even in small dimensions, with rich monu-
...mental and architectural meaning. In his facades prevails the co-
...lumnar system, particularly in the colossal order" extended
...through two stories. Particular favor with him was enjoyed by
...the triple window with round arch over the middle window and
...proportions above the side windows (Fig. 27). A mode of treat-
...ment designated after him as the "mode of Palladio". This is
...certainly not entirely appropriate, since it is also found wi-
...thy on the palace of Fieschi at Genoa. (Volume I).

1616 after his designs, though not completely, -- and one may say unfortunately. -- The buttresses and upper parts were clothed in Gothic details, which appear like meaningless accessories in comparison with the animated forms of the doorways and windows. (Fig. 270). Tibaldi was a powerful and refined master in the creation of interiors and in architectural treatment.

In the east part of upper Italy further arose in the 16th century a chief master of the Renaissance, the great Andrea P. Palladio of Vicenza (1508-1580). In him we become acquainted with the most inspired and strongly convinced venerator of the antique, which Italian architects of the 16th century and of the entire Renaissance period have to show in their series. No master before him had studied with such devotion and thoroughness the architectural works of the ancients and so deeply penetrated into their nature, and none had understood how to embody the spirit of the later time organically in their treatment of forms with such sovereign domination, like him. In contrast to Vignola, who like the Roman architects generally of the high and late Renaissance preferred pier construction, Palladio cultivated columnar architecture. In the year 1570 appeared at Venice his "Four Books of Architecture", by which he has exerted a deep influence upon the evolution of architecture, effective until our own times. Palladio was just as strong in the theory as he was free and independent in creation in practice. He never ended with an ornamental effect, but allowed himself only to be guided by the arrangement and the feeling of proportions. He was so full of artistic power, that he filled his works, even in small dimensions, with rich monumental and architectural meaning. In his facades prevails the columnar system, particularly in the "colossal order" extended through two stories. Particular favor with him was enjoyed by the triple window with round arch over the middle window and architraves above the side windows (Fig. 271), a mode of treatment designated after him as the "motive of Palladio". This is certainly not entirely appropriate, since it is also found with Sansovino, with Raphael (page 218), with Bramante, and already on the palace of Diocletian at Spalato. (Volume 1). He restrained the ornament so far, that the clarity of the actual

architectural elements could not be lessened thereby.

...the ... of the ...

of the old city hall, coming from the second half of the 15th century, by an open two-story portico (fig. 271) extending entirely around it, a work of great and rich effect. This was followed by the beautiful palace Marcantonio Tene (1545) preceded with a colossal order of columns, then palace Giustiniani (1552) with open portico in both stories, and palace Valeriano (1558), that exhibits a colossal order of Composite pilasters. In palace Saitano (like those previously mentioned in Venice), he gave (1570) relatively rich details, loaded with relief to the effect in the vicinity (it stands in a narrow street), to palace Frattino (1571) a massively effective decoration (fig. 282), which however seems less really employed on the comparatively small building, than on the other structures of the master. Of Palladio's numerous villas (fig. 283), the villa Rotonda near Vicenza is the most famous (fig. 284). It has a regular square plan with four luxurious terraces and wide flights of stairs on each side. Windows on these lead to a round central domed hall, around which are located the rooms and the upper and lower half stories. Of the whole, this villa makes the impression, that it was designed less for comfortable than for formal occupancy, and as a central end view point of a beautiful landscape. The theatre of Vicenza, commenced by Palladio but only completed after his death, appears as an interesting example in the restoration of the antique theatre (fig. 272 a). In comparison with extremely plain structures the audience room, orchestra, and side architecturally treated stage wall in the arrangement of the Greek-Roman theatre of Lake Minio, but so far introduced at innovation in that through the dates and colors of the stage wall are presented views in streets and terraces without five details, which were foreign to the former architecture of theatres (fig. 272 b). Likewise Palladio introduced these principles in the design of church architecture. His principal churches of buildings are found in Venice. The first of these is the church of S. Giorgio Maggiore (begun 1565), manifestly in-

structural elements could not be lessened thereby.

Palladio secured the first great architectural commission in the so-called basilica in Vicenza (after 1549), an enclosing of the old city hall, dating from the second half of the 15th century, by an open two story portico (Fig. 271) extending entirely around it, a work of great and rich effect. This was followed by the beautiful palace Marcantonio Tione (1556) treated with a colossal order of columns, then palace Chiericati (1566) with open portico in both stories, and palace Valmarana (1566), that exhibits a colossal order of Composite pilasters. To palace Barbarano (like those previously mentioned in Vicenza), he gave (1570) relatively rich details, indeed with reference to the effect in the vicinity (it stands in a narrow street), to palace Prefetizio (1571) a massively effective Composite order (Fig. 285), which however appears less happily employed on the comparatively small building, than on the other structures of the master. Of Palladio's numerous villa buildings, his villa Rotonda near Vicenza is the most famous (Fig. 286). It has a regular square plan with four hexastyle temple facades and wide flights of steps on each side. Entrances from these lead to a round central domed hall, around which are grouped the rooms and the upper and lower half stories. On the whole, this villa makes the impression, that it was designed less for comfortable than for festal occupancy, and as a central and view point of a beautiful landscape. The theatre Olimpico at Vicenza, commenced by Palladio but only completed after his death, appears as an interesting attempt in the restoration of the antique theatre. (Fig. 272 a). It contains in an extremely plain structure the audience room, orchestra, stage and architecturally treated stage wall in the arrangement of the Greco-Roman theatre of Asia Minor, but so far introduced an innovation in that through the gates and doors of the stage wall are presented views in streets and thereby perspective depths, which were foreign to the former architecture of theatres. (Fig. 272 b). Likewise Palladio attempted great works in the domain of church architecture. His principal church buildings are found in Venice. The first of these is the church of S. Giorgio maggiore (begun 1565), magnificently loc-

...on the island of the same name and ...
...and a long narrow, choir ...
...from which it is separated by an ...
...the most perfect ...
...the master, is the church of ...
...began 1877, situated in ground ...
...but single aisles with side ...
...The interior of this church ...
...of this beauty and solemnity by the ...
...the interior and the bold and ...
...of columns and their ...
...the facade as a ...
...the facade of the ...
...half columns and low ...
...of the side aisle covered by ...
...without any organic competition.

...was erect and peculiar with all ...
...and use of the antique architectural ...
...the creation of interior and ...
...his contemporaries his influence ...
...The strongly so-called ...
...was executed under the ...
...but it not desired to ...
...by influenced by him, ...
...Tristan-Barnon in ...
...More than by his ...
...has this master influenced the ...
...work, "Architettura universale", particularly architecture in ...

...direct competition with the ...
...the ...
...after the first quarter of the 18th century, by the ex-
...trade with the Levant, of which it obtained a ...
...first expression in architecture. The ...
...from the first a peculiar and independent development, that a

located on the island of the same name and opposite the Piazzetta, a three aisled basilica with dome, transepts ending in semicircles, and a long monks' choir arranged as an extension of the main choir, from which it is separated by an open colonnade. The second and more important work, the most perfect church structure of the master, is the church del Redentore in the Giudecca, begun 1577, similar in ground plan to that one just mentioned, but single aisled with side chapels and shorter monks' choir. The interior of this church produces an impression of high beauty and solemnity by the powerful treatment of the interior and the bold and severe subdivision by a colossal order of columns and their entablature. Equally grand and monumental did the master treat the facade as a temple front forming the facade of the middle aisle with a colossal order of half columns and low pediment, against which are attached the fronts of the side aisles covered by half pediments, certainly without any organic connection.

Palladio was great and peculiar with all security in the conception and use of the antique architectural system in the architectural ideas, the creation of interiors and proportions. Already among his contemporaries his influence became perceptible. The stately so-called Library of the old seminary at Vicenza (Fig. 273) was executed under the lead of Vincenzo Scamozzi (1552-1616), but if not designed by Palladio, was strongly influenced by him. Likewise in his most imposing building, palace Trissino-Barton in Vicenza, Scamozzi shows himself dependent on Palladio. More than by his buildings (also see page 222) has this master influenced the later world by his great work, "Archittura universale", particularly architecture in Germany.

Into direct competition with the splendid city of the lagoons on the Adriatic Sea the republic and harbor city of Genoa entered after the first quarter of the 16th century. By the extensive trade with the Levant, of which it obtained a great part, it soon rose to great prosperity and wealth, which found fluent expression in architecture. The centre of gravity of Genoese architecture lies in palace architecture. This took from the first a peculiar and independent development, that in

the late Renaissance in a certain sense represents a more mature stage than the contemporary palace architecture in Venice and the rest of Italy. The lack of space and the building sites rising in terraces from the sea to the tops of the hills required in the narrow streets an abandonment of the monumental treatment of the facades. Men saw the centre of gravity in the interiors, the fulfilment of the requirements for living and in reference to dignified assemblies. To the facades was given an ornamentation better suited to an effect near by. The portal led into an imposing vestibule, but little elevated above the street level, from which by wide and gently rising stairs one passed into the court. This was certainly limited to small dimensions, but it received at its rear a special decoration by a fountain erected on the middle axis. In this way were obtained picturesque views and effects of lighting with distinguished effects, scarcely equaled and never excelled elsewhere.

The evolution of Genoese architecture is connected with the works of its chief master, the talented Galeazzo Alessi (1512-1572). Coming from Perugia and employed for a considerable time in Rome, where he came in contact with Michelangelo and Vignola, he shared with the former the great tendency, to which details are but a means toward the purpose, but a feeling for proportions with the views of Vignola. One of his earliest works is the beautiful palace Municipio in Milan, formerly palace Marini (begun 1558), in which the court is treated with an unusual richness in ornamental and sculptured decorative work. (Fig. 274). The great series of his Genoese palaces was opened by Alessi in the year 1559. The most important among them stand on the famous Strada Nuova, on which is arranged palace after palace. There are the still somewhat severe palace Cambiaso, treated in the Roman style and entirely covered by rustication, but already furnished with broken pediments over windows and doorways, beside it being palace Iercari, so picturesque by its open loggias in the upper story, and then palace Spinola, externally painted but equipped in the interior with imposing vestibule, stairway, upper porticos and court design. Of the numerous villa buildings of Alessi from the vicinity of

Genoa is to be particularly emphasized villa Pallavicini, located so beautifully on a high garden terrace with open arched porticos on the middle axis and a splendid balustrade crown; likewise villa Paradiso with its elegant loggia in the upper story extending the entire depth of the building and the treatment of the details already intended for a Barocco effect. Likewise as church architect Alessi attained high fame. His church of S. maria da carignano (after 1552) at Genoa, a domed church arranged in the plan of a Greek cross after the church of S. Peter according to Michelangelo's plan, with four towers at the angles (but two of which were erected), belongs to the most important church buildings of the Renaissance. (Fig. 275).

229 Among the contemporaries of Alessi, Giovanni Battista Castello (died 1569) deserves mention, the creator of palace Imperiale (1550), richly painted with figures and ornamental work (partly in bronze colors), and palace Carega (now Cataldi) subdivided by pilasters, and furnished with a very beautiful vestibule and double stairways.

Of the other masters of the Genoese late Renaissance, Rocco Durago (died about 1590?) erected palace Doria-Tursi in the grand style, certainly rather pompously than nobly treated, whose rich facade subdivided by rusticated and fluted pilasters continues at both sides in one story open arched porticos, and Baccio del Bartolommeo Bianco (died about 1556), who on the facade of his palace University, begun 1523, no longer restricts himself within the limits of the Renaissance, but created a portico and an arcaded court with coupled columns (Fig. 276), such as he could have scarcely thought more beautiful or suitable.

237 The architects of the second half of the 16th century here mentioned still remained within the circle of forms of the Renaissance; they also continued severe in a certain sense, though not in the same degree as the other masters of this period. But in their works in the way and manner of the arrangement of the rooms, the regard to place impressive representations in the foreground, and their aim at the picturesque, perspective and lighting effects, and by the design of the details, they already exhibit a new spirit, that of the beginning Barocco style.

2. RENAISSANCE ARCHITECTURE IN SPAIN AND PORTUGAL.

The time of the Renaissance brought to the great peninsula in the extreme southwest of Europe a period of unusual prosperity and the climax of its political importance and power. In the year 1479 originated by the union of the two principal states of Castile and Arragon a great Spanish kingdom, which soon commenced a thorough political reorganization to strengthen its internal power and for a development of that directed externally. The Spanish monarchs placed themselves in the service of the Catholic church, for whose extension and in the name of its protection, they employed the sword. In the year 1492 the last remnant of Moorish sovereignty was conquered by the taking of Granada; in 1504 after an important participation of the Spanish army in the contests for Italy, the kingdom of Naples came under the Spanish monarchy, and in 1516 there fell to it by inheritance the crown of the imperial house of the Hapsburgs. Thus Spain became the centre of the world empire of the Hapsburgs, which then comprised Germany, the Netherlands, Burgundy, Milan, Sicily and the colonies in America and Asia. The enterprising spirit of the Spaniards, in whose country the affairs of foreign nations were settled and the fates of distant lands determined, rose without restraint. Already in 1492 had they discovered a new world; in 1519 a great Spanish realm was founded beyond the ocean, the kingdom of Mexico. The maritime commerce took a new and grand development. Its most important starting and terminal points were the Spanish harbors and Spanish cities. From the new parts of the world flowed into these unknown wealth.

In this time of a magnificent national and material advance great problems fell to architecture. The cities of the South were wrung from Islam and required impressive cathedrals; the extension and deepening of the Christian faith was required by the church and demanded the founding of influential monasteries and their energetic support; the princes and the great of the country longed for new palaces, corresponding to their dignity and their wealth, and the cities in their public buildings scarcely remained below the increased requirements. Thus the conditions of the time existed from the end of the 15th century for a welcoming reception of the Renaissance forms pe-

penetrating from Italy, and the external conditions of life were particularly favorable to their development. But by their forced growth were they compelled to accept materials from the different soil, saturated with the precipitate of the preceding art periods, which changed their character and produced a specific Spanish coloring.

The gifts of the Spanish nation substantially lay in the picturesque and ornamental by its strong mixture with German and oriental blood. The Mudejar style and the Florid style (*estilo florido*) (pages 141, 142) here produced by it the richest fruits. Yet is also found the Italian art invention in the creation of a unified and completed architectural organism, at least in the conceptions relating to the not inconsiderable Romanesque part of the population. The principal representatives of these were the architects called or emigrating from Italy, who besides other foreign architects from the Netherlands, France and Germany, were a determining influence on certain principal works of Spanish architecture. Under the combined and parallel effects of such unlike conditions and impelling forces, Spanish architecture attained an unusually diversified development.

The earliest influences of the Renaissance appear in the northern half of Spain and indeed in the "Plateresco" native there, that had its beginning about the year 1480. (Page 142). The Plateresco in its beginning appears as a decorative style, chiefly developed on Gothic principles, permeated and ornamented by Moorish elements without definite rules in a luxuriant grouping beside and on each other, in which Renaissance ornaments are intermingled in the cavettos, on the friezes, as panels, ornaments and the like, loosely and gracefully like overlaid goldsmith's work. * The Renaissance forms are gradually increased by pilasters, candelabra columns and mouldings, but which are at first conceived as entirely decorative. The new forms gradually predominate in the structure and in the ornamental work. Their arabesques and scroll ornaments soon became nearly pure in drawing (on certain works, for example the portal at the hospital of Santa Cruz in Toledo already before 1514. (Fig. 277). Yet they even then appear as an overlaid decoration, scarcely growing out of the organism of the architectural

members, but in graceful, unrestrained and spirited use, with an inexhaustible abundance of ideas, thus enhancing the effect of the frequently dry and heavily treated architecture.

** In not a few cases the Moorish style gives the keynote. Then Gothic and Renaissance forms appear as decorative accessories. On the whole the German architects called into the country, who remained there and were naturalized, have a rich part in the development of the Plateresco. They had learned in the North to thoroughly know the native Gothic, were very skilful in the art of ornamentation, particularly as decorators, as such readily took up the new motives of the Mudijar and later those of the Italian Renaissance, thus producing an unlimited wealth of forms, that was poured in lavish abundance over their architectural works, executed for the splendor-loving Spaniards.*

The Plateresco is an extremely interesting flower of Spanish civilization, a reflection of the nation fused from different races of people, the true style of the Spanish early Renaissance. We can place its beginning at about 1500, if we perceive the first time of the penetration of Renaissance motives in the Spanish series of forms still predominating in the Mudijar style. Certainly this determination of the time in general only applies to the secular and monastic architecture. The churches retain in part until 1530 their purely Gothic character, and also even until toward the middle of the 16 th century are mostly in a predominating Gothic. (Page 140).

Besides the showy architectural style of the Plateresco, which in extravagant ornamentation also surpasses all, that contemporary art produced in other countries, the severe Renaissance found entrance at a relatively early date -- already in the twenties of the 16 th century --, indeed as a direct imitation of the Italian high Renaissance. The Spaniards term this style the Greco-Roman style. But its monuments (Fig. 278) are seen to not have grown on Spanish soil. They appear cold, lifeless and repellent in the land of the Mudijar and Plateresco, even with every care in regard to correct treatment of the details. The national stamp is even wanting to them. Likewise in the Plateresco about the middle of the 16 th century appears a moderation in the use of decorative expedients. The Ita-

Italian Renaissance forms are more freely adopted, the organism wins in clarity, yet without rejecting the Spanish requirement of show.

234 The period of the matured style, the Spanish high Renaissance begins with the reign of Philip II (1556-1598). After the theorist Francisco de Villalpanda (died 1561) * had designated the classical orders as a direct inspiration of God to the Jews at the beginning of the temple, a conception also propagated by the Academy of Art founded in Madrid by Philip II, the antique canon appeared as a kind of dogma. The artists studied the antique rules with great zeal. Thus arose works of that universal Palladian style, which frequently differed in facades and also often in the palace courts from the similar buildings in Vicenza and London, only by their location. The cheerful and unrestrained enjoyment of life passed in them into a stiff and tasteless classicism. But on the few structures designed for show, particularly on portals, cloisters and also in the interiors of the palaces, there remains a peculiar Spanish architecture with a preference for gay ornamental work, even in this time.

** Villalpanda was a fertile writer on art and at the same time an eminent practitioner. He had measured and drawn the most famous Roman buildings, translated the 3rd and 4th Books of Serlio on Architecture, and he added to this not only a thorough training, but also a rare refinement of taste, particularly in the direction later termed Atticism.*

24 Among the successors of Philip II classicism continued. The unusual advance in the sciences and arts and the tense national feeling of the Spaniards also brought the architects themselves to their senses and to a freer expression of their peculiar mode of thought. Thus in church architecture, which so far at least in the North had remained entirely dependent on the Gothic cathedral system, the national ground plan again came into general acceptance, as it had already developed in the middle and southern portions of the country in the 15th century. (Page 141). Palace architecture never developed its own type. In the early Renaissance rectangular plans with straight facades are especially common, undivided lower stories are only animated by small and tasteless windows, richly dev-

developed upon earlier organic forms, showing a new
 low tower-like structure with localities and embellishments.
 Lines of the facade also form a Gothic peculiarity on the fac-
 adities of the first Renaissance. But otherwise the latter in
 the other end architecture stand under foreign influences, most-
 ly Italian, French and Flemish. The period of the Renais-
 sance closes about with the reign of Philip III. (1591-1621).

The most important monuments of the early Renaissance are
 found in northern Spain with few exceptions. There the Renais-
 sance developed in a manner which enhances its original meaning-
 ness on localities and objects, as well as on the entire exte-
 rial and internal architecture. On the exterior of the cathed-
 ral of Santiago de Compostela (about 1511) quite directly but
 in the most obvious manner, Renaissance features, capitals and
 scroll columns are introduced between medieval forms. Renais-
 sance is advanced in the exterior of the cathedral of Leon (1492-1550).
 The facade of the monastery of St. Marcos (Leon), erected by Ju-
 an de Badajoz (about 1514) is covered with the highest exalt-
 ed of the time. The lower story recalls by its lighter archi-
 tecture work in the Gótico style and the former corner-
 ar story with the candelabra columns and the former corner-
 tal work over the windows and niches, the Flemish early
 Renaissance. A still richer example of this type is afforded
 by the beautiful portal to the cathedral of Santa Maria in To-
 ledo (1502-1514) by the architect Enrique de Guzmán. The
 (Fig. 277). On the exterior in Toledo one of the most masters
 in 1517 the Renaissance northern facade. From the interior con-
 siderable attention is given to the facade and the interior column
 center of the archway's facade at Toledo de Toledo (1517).
 including Italian models. Numerous and interesting examples of
 the Renaissance style are covered by the latter. The period
 of the university (1515-1560) is erected over the two entrance
 as in three stories without windows, as a show piece entirely

developed upper stories opening like loggias, showy main cornices and ornamental roof crestings recalling metal works. At angles rise directly and without projecting from the facade, low tower-like structures with loggias and entablatures. These angle buildings and a certain preference for long and unbroken lines of the facade also form a Spanish peculiarity on the buildings of the high Renaissance. But otherwise the latter in the plan and architecture stand under foreign influences, mostly Italian, French and Netherlandish. The period of the Spanish Renaissance closes about with the reign of Philip III. (Died 1621).

The most important monuments of the early Renaissance are found in northern Spain with few exceptions. There the Plateresco developed in luxuriant abundance its splendid magnificence on portals and cloisters, as well as on the entire external and internal architecture. On the cloister of the cathedral of Santiago de Compostela (begun 1511) quite directly but in the most charming manner, Renaissance friezes, consoles and small columns are interpolated between mediaeval forms. Farther advanced in the cloister of the cathedral of Leon (1520-1550). The facade of the monastery of S. Marcos there, erected by Juan de Badajoz (after 1514) is counted with the noblest creations of the time. The lower story recalls by its pilaster architecture much in the Quattrocento art of upper Italy, the upper story with the candelabra columns and the luxuriant ornamental work over the windows and niches, the Netherlandish early Renaissance. A still richer example of this type is afforded by the beautiful portal to the hospital of Santa Cruz in Toledo (1504-1514) by the architect Enrique de Egas from Brussels. (Fig. 277). On the Alcazar in Toledo one of the chief masters of the Spanish early Renaissance, Alfonso Covarrubias, erected in 1537 the Plateresco northern facade. From him likewise comes the beautiful stairway design and the imposing columnar court of the archbishop's palace at Alcala de Henares (1534), recalling Italian models. Numerous and imposing monuments of the Plateresco style are possessed by Salamanca. The portal of the university (1515-1530) is erected over the two entrances in three stories without windows, as a show piece entirely composed of figure reliefs, arms and arabesques between decor-

recovered self columns and pilasters. Allied treatment is shown by the somewhat later work of S. Bonington (1824-1825). The very portals of churches of this time, it is in a wide and high arched niche, that efforts are made to the fine sculptures against the weather. Palace Kennedy in Baltimore is a richly developed palace design (1820), characteristic of the German early Renaissance. The interior decoration was rescued by the decorative style in the architectural manner completed city hall (1824-1825) at Baltimore. (1824-1825). It is nearly the sole work in the South that has a richness and beauty inferior to no contemporary work, and leaders never again surmounted. The chief magnificence is shown by the eastern side. (Fig. 221). The lower story here has Corinthian columns, in whose panels fine engravings in the style of the Italian Quattrocento, the upper story being subdivided, partly by fluted Corinthian columns scooped by balustrades of the side, partly by candelabra columns, the entire facade being enriched with sculptural members and the wall surfaces with most lavish sculptures and ornamental work.

The Greek-Roman style is shown as the earliest monument by the Palace of Charles V (Fig. 222) erected at the University. This is a rectangular ground plan with a colonnade consisting of a colonnade court, in which the entablature rests directly on the columns. As on the facade, the Ionic order is employed on the lower story and the Doric on the upper one. As architect is mentioned Wachsmuth, who had charge of the building from 1546 to 1558. After the court and three fountains were constructed, the structure remained unfinished. The cause exhibits a clear arrangement, a complete domination of the architectural mass, and some, refined and beautiful details, that stand near to the significance of Bramante's. (1820). It appears in its universal style in the midst of the surrounding buildings and the entire facade as an expressive symbol of the location in the world assumed by Charles V.

The first canon building in executed Renaissance form is the cathedral of Granada (1528). It is one of the most famous of the structures on the basis of formal laws in the plan as a five sided plan with six conditions rays and the extension of the outer sides around the polygonal center, but

decorated half columns and pilasters. Allied treatment is shown by the somewhat later portal of S. Domingo there (1524-1530). Like many portals of churches of this time, it lies in a wide and high arched niche, that affords protection to the fine sculptures against the weather. Palace Monterey in Salamanca is a richly developed palace design (Fig. 280), characteristic of the Spanish early Renaissance. The highest perfection was reached by the decorative style in the unfortunately never completed city hall (Casa de Ayuntamiento) at Seville. (1540-1564). It is nearly the sole work in the South but has a richness and beauty inferior to no contemporary work, and perhaps never again attained. The chief magnificence is shown by the eastern side. (Fig. 281). The lower story here has Composite pilasters, in whose panels rise arabesques in the style of the Italian Quattrocento, the upper story being subdivided, partly by fluted Corinthian columns adorned by garlands of fruits, partly by candelabra columns, the entire facade being supplied with structural members and the wall surfaces with most lavish sculptures and ornamental work.

The Greco-Roman style is shown as the earliest monument by the palace of Charles V (Fig. 278) erected at the Alhambra. This has a rectangular ground plan with a colossal circular columnar court, in which the entablature rests directly on the columns. As on the facades, the Doric order is employed on the lower story and the Ionic on the upper one. As architect is mentioned Machuca, who had charge of the building from 1526 to 1533. After the court and three facades were constructed, the structure remained unfinished. The palace exhibits a clear arrangement, a complete domination of the architectural masses, and sharp, refined and graceful details, that approach near to the architecture of Sanmicheli. (Page 220). It appears in its universal style in the midst of the surrounding buildings and the entire landscape as an expressive symbol of the position in the world assumed by Charles V.

The first church building in expressed Renaissance forms is the cathedral of Granada (page 145). Enrique de Egas had commenced the structure on the basis of Gothic lines in the plan as a five aisled plan with six continuous bays and the extension of the outer side aisles around the polygonal choir, but

only the foundations were completed. From 1528 Diego de Siloe (died 1563) led on the building; in 1561 it was dedicated. The architecture remains within the limits of a very severely conceived Renaissance, still under Gothic influences; the vertical lines are strongly accented, the piers are energetically subdivided, not in the sense of the overloading of the Barocco, but in that of a translation of the originally designed Gothic piers into Renaissance forms (Fig. 282). The nucleus of the choir is formed by a central building with ten sides occupying the width of the middle aisle. The vaulting follows with rich, but purely decoratively treated star vaults. Diego de Siloe is also the builder of the cathedral in Malaga (after 1528; F Fig. 283), which in plan and treatment frequently recalls that in Granada, but on its visible side differs from that advantageously by the well weighed subdivision of the structure into two nobly treated columnar orders between the front towers. According to the building period the cathedral of Jaen also still belongs to the early Renaissance, begun in 1532 after the plans of Pedro de Valdevira. On it again appears the true national church ground plan (Fig. 279) as a rectangle (223.1×144.4 ft. in the clear) with three continuous longitudinal aisles, a transverse aisle, chapels along the outer side walls and choir end, and two flanking towers in the facade. The architecture of the interior and exterior already bears the character of the style of the succeeding period.

279 The high Renaissance had in Philip II a zealous and energetic patron. The king took part personally in the preparation of building plans, and also interfered directly in the superintendence. Already in the first years of his reign, he commenced at some 310 miles northwest of Madrid and at the foot of the Guadarrama mountains his principal creation of the Escorial (Fig. 284). In it he established in 1563-1581 a colossal structure, that was to combine the church (S. Lorenzo), monastery, royal palace, library, Mausoleum and picture gallery. The ground form is a rectangle with sides of 524.9 and 656.2 ft., enclosed by four wings of the building, that on the entrance side showing a richly subdivided frontispiece. The two side wings continue in a single line for each, but the rear

one is shown by the origin of the canal. The mure are con-
structed by four tower-like structures. The channel runs on the
side and is a central portion with a brick canal with a
vertical between the first towers. By vertical and transver-
se divisions is produced a great number (15 or 20) of rectan-
gular internal courts, all surrounded by arcades on three or
columns. An arcaded passage was engaged from the tower to the
(1500-1550), and after his death (1550), Juan de Herrera,
(1530-1590). Both had received their training in Italy (Nepo-
les and Rome), whereby is explained the architectural forms en-
tirely in the Italian manner. The canon of the Escorial
and Herrera had been furnished designs. The Escorial was con-
structed in its time the great wonder of the world. It is because
the famous architectural understanding ever conceived and ex-
pressed by a single man, indubitably the royal palace and chapel
of Philip II, whose spirit of rigid discipline, reflected in
nature, strict and religious religiosity, are expressed by a
work, the otherwise is without great importance in the his-
tory of art. Soon after the completion of the Escorial, the
king completed another great structure in the north of Spain,
the monastery of Valldivino. (1550-1560). Juan de Herrera
designed for it a strongly conceived plan in the basal form of
a rectangle 105 x 250 ft. in the clear, with dome and four
towers, but he was completed by lack of means to pre-
sently terminate the construction, after scarcely one half was
executed. Herrera was the most important Spanish architect of
the 16th century and the greatest architectural official of
the country. His exclusive (house) at Seville (1554-1560), a
monumental structure, the most of which is still existing at
Seville and Tordesillas, including an impressive two-story
court with arcades on three, treated entirely in the Italian
manner, and which must be well have stood in Valencia. For the
castle in Aranjuez in the north or an incomparable landmark.
directly conceived by Herrera (1550), but executed on account of
the election of the Escorial. Herrera designed in 1551 new di-
visions of the king, whose execution was then begun.
But the master did not live until the completion.

one is broken by the choir of the church. The angles are accented by low tower-like structures. The church lies on the main axis and is a central building over a Greek cross with a vestibule between two front towers. By parallel and transverse divisions is produced a great number (16 in all) of rectangular internal courts, all surrounded by arcades on piers of columns. As architects were employed Juan Bautista de Toledo (died 1567), and after him his great pupil, Juan de Herrera. (1530-1597). Both had received their training in Italy (Naples and Rome), whereby is explained the architectural forms entirely in the Italian character. The church of the Escorial (Fig. 285) is Herrera's own work. Likewise Vignola, Alessi and Tibaldi must have furnished designs. The Escorial was called in its time the eighth wonder of the world. It is perhaps the largest architectural undertaking ever conceived and executed by a single man, indicating the royal nature and personality of Philip II, whose spirit of rigid etiquette, sullen nature, gloomy and petrified religiosity, are expressed by the work, but otherwise is without great importance in the history of art. Soon after the completion of the Escorial, the king commenced another great structure in the north of Spain, the cathedral at Valladolid. (After 1585). Juan de Herrera designed for it a grandly conceived plan in the basal form of a rectangle 452.7×229.7 ft. in the clear, with dome and four angle towers, but he was compelled by lack of means to prematurely terminate the construction, after scarcely one half was erected. Herrera was the most important Spanish architect of the 16th century and the supreme architectural official of the country. His exchange (bourse) at Seville (1584-1598), a rectangular structure, its exterior simply subdivided by wall strips and Tuscan pilasters, enclosing an impressive two story court with arcades on piers, treated entirely in the Palladian sense, and which might as well have stood in Vicenza. For the castle in Aranjuez in the midst of an incomparable landscape, already commenced by Toledo (1561), but stopped on account of the erection of the Escorial, Herrera designed in 1571 new plans at the command of the king, whose execution was then begun. But the master did not live until the completion.

The severe academic tendency introduced by Juan de Herrera influenced nearly all buildings at the end of the 16 th century and even prevailed at the beginning of the 17 th century.

IN PORTUGAL the early Renaissance is characterized by the "Manuelino style" (estilo Manuelino; page 146), whose chief work is formed by the monastery of Batalha near Lisbon (page 148) founded in the year 1500 by Manuel the Great (1495-1521). The magnificent portion of this singular architectural work is the cloister represented in Fig. 286, by Joao de Castilho and built before 1550, perhaps the most beautiful, in any case the most magnificent of all monastery cloisters. Until after the middle of the 16 th century the Portuguese adhered to the art style of their best period. Indeed about from 1533 onward became perceptible . stronger infusion of Renaissance with the loggia of the Capellas icparfeitas at Batalha. (Page 147). B But it did not attain an entirely national development and maturity, since the country had fallen deeply into decadence under the successors of the great king. About 1570, Filipe Terzi of upper Italy came to Portugal, indeed on invitation of t the Jesuits. The king Sebastian appointed him in 1572 architect of the royal palaces; later he also became architect of t the fortifications. Terzi erected numerous buildings in Lisbon in very pure forms of upper Italy, among them the church of S. Vicente de Fora (after 1590), whose facade exhibits on a high lower story three intervals of a great Doric order, above being a Corinthian order, and flanked by two low towers.(Fig. 287). A series of other structures were partially or entirely destroyed in the earthquake of 1755. Likewise in Coimbra, Porto and Thomar, Terzi was engaged on great buildings. He was t the architect of the developed Portuguese Renaissance, who exerted a controlling influence upon all masters employed in the country in that period.

246

3. RENAISSANCE ARCHITECTURE IN FRANCE.

I. Historical Evolution and Style.

More closely than in any other country outside Italy does the art succeeding the middle ages cling to that of the Italian Renaissance. Indeed likewise here, as in all northern countries, had the soil proved itself particularly adapted to the Gothic. But otherwise in France the basal conditions for the acceptance of Renaissance forms were substantially less favorable, than elsewhere. The French are an artistically gifted mixed Romanesque people, that was derived from at least three great races, the Gauls, Romans and Franks, and stand infinitely nearer the Italians in derivation and character, than the other nations of the West. In the formerly Roman provinces of southern France the antique had exercised a direct and deep influence upon the entire civilized life and had left behind numerous monuments, which must have affected the artistic designs of the Romanesque population there preponderating in a manner similar to that on the racially allied Italians beyond the frontier. Likewise in the climatic, regional and general conditions of life lay many analogies, which produced necessarily the same expressions in the art works. And even if the assumptions are faulty, the evolution of the French Renaissance would have been completed internally from these bases, in entire independence and without foreign influences. It required far more deep and continued impulses, before the French Renaissance reached its development and maturity. These impulses started at the end of the 15th century from an event of political history, by which the French monarch and the great men of the country learned to know the architectural works of the Italian cities, by the campaign of the army undertaken by Charles VIII (1483-1498) to Naples in the year 1495, in order to protect his right of inheritance. The splendid Italian churches and palaces made a deep impression on the king and his knights. He conceived the plan of erecting similar buildings in his own country, and further called to France in the same year a series of Italian artists, among whom were Fra Giocondo of Verona (page 212) and Domenico da Cortona. His successor Louis XII (died 1515) continued his endeavors, and Francis I, a powerful

monarch and a zealous promoter of art and science, who had also among others secured the theorist of Serlio from Bologna (page 229) for his service, systematically carried on his buildings the Italian Renaissance with all its consequences. Thus it was the court and the second line of nobility dependent thereon, who appeared as the supporters and spreaders of the Renaissance in France. Thereby it received there this predominating character of the court. Its entire evolution was determined by the reigns of the different kings named. Therefore the French also designate the different periods after the names of their monarchs. Since the formative arts first of all have to serve for dignified representations and personifications of the royal powers, architecture takes the leading part. Painting and sculpture appear in a condition of dependence upon it.

Until the end of the reign of Francis I (1545) continued the period of transition from the form world of the middle ages to the matured new style. Therefore we have placed the French early Renaissance from about 1500 till 1545. The chateaus of this time permit the recognition of their development from the mediaeval castle. They still form irregular architectural designs, that are surrounded by a wall and moat, contain one or more courts, and the main buildings are so arranged, that they are grouped around a great court, the court of honor, with three or four wings. Outside this architectural group serving for the use of the court, is found the subordinate court (basse cour) intended for the housekeeping. At the various angles of the chateau stand towers, which are still mostly round, yet have already lost their purpose of defense and serve as living rooms (Fig. 288), at the corners of the main court being smaller stairway towers. The private palaces located in the cities (termed "hotels" in France) generally show a simplification of the chateau design at a smaller scale, and with the omission of the arrangements intended for defense. They were placed away from the streets if possible, separated from them by a court with a high enclosing wall. A rich facade was exhibited by the city halls as a rule. With the conservative sense of the cities, these were still exclusively Gothic until in the second quarter of the 16th century, but then occurred Renais-

reference forms in English architecture.

The simple houses of the citizens are mostly half timbered structures with narrow house entrances and wider arched openings for the shop or the workshop in the ground story, and pointed windows in the upper story serving for living rooms. The construction architecture of the early Renaissance retains the Gothic system in ground plan and structure even with the houses system, maintaining the detail forms on buttresses, flying buttresses, finials and pinnacles directly into Renaissance forms. The windows frequently retain Gothic pointed windows, even in the case of chateaux. In secular architecture (Fig. 280) in case of pointed arches occur round arches, decorated arches, and particularly common are straight arches (architectural motif with rounded corners). The windows are also in pairs and mostly receive a stone cross for a pedimental light area. The battlements are replaced by decorated gables. An expressed preference for plain and steep roofs, for rustics and especially treated corners (roof windows) and for colossal and harmoniously treated details appears everywhere as a natural tendency. The evolution of the style of the Renaissance is extremely interesting, and it contains no unified reconstruction. One could select an entire series of isolated, that exhibit a special character of the style corresponding to the diversity of the provinces and their evolution. But in general may be recognized two chief tendencies, the Italian and the Gallo-Frankish. The former strongly influences from the influence of the southern French-Aragon and of Italian art; the latter is rooted more in the native Gothic. The sources are also to a far less degree than those in the classical architectural works of the South and of Italy, for the Gallo-Frankish portion of the population, still connected with medieval art, book illustrations and the like, in the Renaissance was it that the new mode of decoration, in particular the animated ornament as it appeared in the Quattrocento

Renaissance forms in luxuriant magnificence.

The simple houses of the citizens are mostly half timber structures with narrow house entrance and wider arched opening for the shop or the workshop in the ground story, and coupled windows in the upper story serving for living rooms. The church architecture of the early Renaissance retains the Gothic design in ground plan and structure even with the buttress system, translating the detail forms on buttresses, flying buttresses, finials and parapets directly into Renaissance forms. (Figs. 189, 299). The windows frequently retain Gothic subdivisions, even in chapels of chateaus. In secular architecture (Fig. 290) in place of pointed arches occur round arches, depressed arches, and particularly common are straight arches (horizontal lintel with rounded corners). The windows are made large and mostly receive a stone cross for a rectangular light area. The battlements are replaced by perforated galleries. An expressed preference for high and steep roofs, for numerous and splendidly treated dormers (roof windows) and for colossal and harmoniously treated mantles appears everywhere as a natural peculiarity, that has in great part been retained to the present time. The evolution of the style of the French Renaissance is extremely interesting, but it presents no unified representation. One could select an entire series of schools, that exhibit a special character of the style corresponding to the diversity of the provinces and their population. But in general may be recognized two chief tendencies, the Italian-Antique and the Gallo-Frankish. The former directly results from the influence of the southern French-Antique and of Italian art; the latter is rooted more in the native Gothic. Its sources are also in a far less degree than those in the classical architectural works of the South and of Italy, for whose organism were at first little accessible the art forms of the Gallo-Frankish portion of the population, still controlled by mediaeval opinions. It was derived much more from intarsias made in Italy, book illustrations and the like, in Italian original drawings, copper engravings and bronze tablets, and in these was it that the new mode of decoration, in particular the animated ornament as it appeared in the Quattrocento

one of other Italy, that held the French, inclined toward the
 some transition style with mixed Gothic and Renaissance forms, the
 it was gradually purified with the increasing understanding of
 the nature of classical forms, finally turning into the style
 of Italian-Renaissance art, yet in harmony with the national Ren-
 nance. A particular pleasure in literature acquired and ornate
 mental decoration then still belonged to it. The ornament re-
 ceived in nearly all details from that of the Italian Ren-
 nance, especially from that of other Italy, not by the art
 taste of the French completely directed toward the ornamental
 and graceful, it received by the dominant use of Italian mani-
 erism, course of aims, symbols and monuments an original devel-
 opment. The ornament of the early Renaissance only remains in
 use until about 1550; the decorative elements, at least in the in-
 terior and received straight lines with landscape. In the
 of the school of Fontainebleau, which was spread over all
 France by native ornamental engravers.
 The French Renaissance (about 1550-1600) commenced with
 about the accession of Henry II (1547-1559). Already under a
 and predecessor had France taken a widely scattered. The court-
 of Paris became the centre of intellectual and artistic life.
 It also assumed the role of leader in art and cultivated taste
 in the entire succeeding period. The provinces remained back-
 ward in the development, particularly those of northern France.
 A series of important artists, trained in Italy, sought to cri-
 ate into several use the classical laws of form learned there,
 and to purify the architecture of their native land, but still
 retain certain national tendencies, which given to French art
 its peculiar expression. In the style became particularly an
 symmetrical distribution of the architectural masses and an empha-
 sis on the chief points. In the noble architectural works
 at design, and the chief axes were accentuated by pediments and
 interior and received straight lines with landscape. In the

art of upper Italy, that held the French, inclined toward too rich and animated decoration. Thus arose an uncommonly picturesque transition style with mixed Gothic and antique forms, that was gradually purified with the increasing understanding of the nature of classical forms, finally turning into the paths of Italian-Antique art, yet in harmony with the national keynote. A particular pleasure in luxuriant sculptured and ornamental decoration then still belonged to it. The ornament may be deduced in nearly all details from that of the Italian Renaissance, especially from that of upper Italy, but by the art taste of the French constantly directed toward the ornamental and graceful, it receives by the abundant use of figure medallions, coats of arms, symbols and monograms an original development with a very fanciful and refined execution. (Figs. 288, 289). The ornament of the early Renaissance only remains in use until about 1580; thenceforth prevails, at least in the internal decoration, the grotesque (page 190) under the influence of the school of Fontainebleau, which was spread over all France by native ornamental engravers.

The French high Renaissance (about 1545-1580) commenced with about the accession of Henry II (1547-1559). Already under his predecessor had France taken a mighty advance. The capital Paris became the centre of intellectual and artistic life. It also assumed the role of leader in art and maintained this in the entire succeeding period. The provinces remained backward in the development, particularly those of northern France. A series of important artists, trained in Italy, sought to bring into severer use the classical laws of form learned there, and to purify the architecture of their native land, but still retain certain national tendencies, which gives to French art its peculiar expression. In the style became perceptible an endeavor for greater regularity, definite architectural lines, symmetrical distribution of the structural masses and an emphasizing of the chief points. On the noble architectural works the angle towers were transformed into pavilions of rectangular design, and the chief axes were accented by projecting and raised central buildings; the stairways were removed into the interior and received straight flights with landings. In the

architecture (figs. 287, 288) revealed the same policy, to
 each other, so that they form a continuous series. Like-
 wise the newer windows not seldom interrupt the main cornice.
 Over these generally rise triangular or round-headed canopies, fre-
 quently having a pedimental form as well as the architrave-
 termination of the facade. Herein as well as in the architrave-
 and of the corner pavilions, the group adds the richness of a
 monolithically treated exterior case like the individuality of a
 the French style Renaissance. In the English version was still in-
 its spirit and the combination of the two styles in one style.
 The forms of details reveal the individuality of the latter
 and arrives to be clearly recognized. A new phenomenon is the
 "pavilion order", on which chiefly ornamented doors covered by a
 inscription are inserted between the several stories of the sp-
 ices of columns (fig. 291). In general pattern corresponds a ge-
 neral treatment of decorative elements: decorative in relief
 ornaments, in the common use of letters and capitals, and in
 consequently Italian architecture, and likewise a certain con-
 dency in treatment of all details. Yet is also observed in
 with the prevalence of a theoretical direction, and as count-
 less in the literary works of different masters.
 The contrast lost all resemblance to the former Renaissance
 one, the wall, decorative towers and the like. They reveal
 a further sign among one or more orders, if they did not have
 to have been account already existing Renaissance. The English
 style has sought costly architectural and statue groups for
 in other forms architectural living masses as evidence for
 technical and quality of the forms of the style. Special at-
 tention in this period reaches very backward in the history
 of the Renaissance. Only on the portals and in the trans-
 and of the facade does it secure a greater influence. But in
 the relations of churches definite Renaissance forms first co-
 and entrance with the beginning of the 17th century.
 In the last decades of the 16th century French art was no
 longer free to develop itself under the unfavorable times, the
 frequent changes on the throne, and the violent religious and
 social wars. Under Henry IV (1594-1610) reached again some

structure (Figs. 292, 302) remained the steep roofs, the dormers and also frequently the great rectangular windows with stone crosses. The dormers were usually arranged directly beside each other, so that they form a continuous attic story. Likewise the upper windows not seldom interrupt the main cornice. Over these generally rise triangular or round-arched caps, frequently arranged alternately beside each other, as the upper termination of the facade. Herein as well as in the arrangement of the corner pavilions, the steep roofs with dormers and monumentally treated chimney caps lies the individuality of the French high Renaissance. In the facade system was skillfully utilized the combination of the two stories in one order. The forms of details permit the individualities of the different artists to be plainly recognized. A new phenomenon is the "French order", on which richly ornamented bands covered by rustication are inserted between the separate drums of the shafts of columns. (Fig. 291). In general becomes apparent a greater enjoyment of decorative richness; particularly in relief ornament, in the common use of hermes and caryatids, than in contemporary Italian architecture, and likewise a certain tendency to refinement of all details. Yet is also expressed in this the prevalence of a theoretical direction, such as occurred in the literary works of different masters.

The chateaus lost all remembrance of the former fortifications, the wall, defensive towers and the like. They received a regular plan around one or more courts, if they did not have to take into account already existing structures. For smaller works the court mostly approximates the square ground form. In other private architecture likewise appears an endeavor for regularity and purity of the forms of the style. Church architecture in this period remains very backward in the acceptance of the Renaissance. Only on the portals and in the treatment of the facade does it secure a greater influence. But in the interiors of churches definite Renaissance forms first found entrance with the beginning of the 17th century.

In the last decades of the 16th century French art was no longer free to develop itself under the unfavorable times, the frequent changes on the throne, and the violent religious and social wars. Under Henry IV. (1589-1610) indeed again appeared

better times. But the king saw more important problems in measures for increase in the welfare of the people, in the construction of streets and canals, the correction of entire quarters of the city, and in the provision of open squares, than in the erection of chateaus. A certain tasteless but intelligible conception then obtained supremacy in architectural creations. Men preferred ashlar work for itself, carried out rustication on all the stories (Fig. 293), but resorted to brickwork to a greater extent, then employing cut stone only for the enclosures of the doorways and windows, the angles and cornices. The Ionic and Corinthian orders lost their preeminence to the Doric. Particular attention was devoted to rustication; it was designed with ornamental decorations and with sunken lines interlaced like worms. * On the whole men resorted to the effect of the masses, which also appears in the most swelled forms of ornamental work. The contemporary Italian art won a greater influence; the stone cross and mullion disappeared. The internal walls and ceilings received in increasing measure moulded enclosures in relief, within which were placed paintings. But in the designs of buildings, the angle pavilions, steep roofs and high chimney caps were still retained the national tendencies.

** Rustication always served to emphasize the strength and stability on the horizontal corners of substructures, on vertical supporting members like the angles of walls and their openings, and even on pilasters and orders of columns, frequently also for purely ornamental purposes, for the animation of facades, as a transition from the horizontal to the vertical, and as a contrast to the orders and their vertical tendency. It is particularly found on great chateaus, palaces, city gates and the like, but less on private houses. It is but exceptionally found on churches.*

For this period of the French late Renaissance can scarcely be given an appropriate time limit. The changes are in time and style too variable and indefinite, and if important writers regard the entire age of Louis XIV and XV as belonging to the Renaissance, there may indeed be mentioned for them as many reasons, as for the acceptance of another, that in general

one may not speak of a French late Renaissance, since the high Renaissance passed directly into the Barocco. But it cannot be denied, that after the deaths of the great masters of the high Renaissance, and particularly with the reign of Henry IV, a changed conception appeared in architecture, which in comparison with the high Renaissance shows a decadence in development, and that on the other hand with the time in which the great statesman Richelieu took the rudder of the state (1624), a and introduced his energetic measures for overthrowing the ancient feudal nobility, and for the erection, strengthening and glorification of an unlimited royal power, a new spirit, that of the Barocco, penetrated into architecture, particularly into internal architecture. Therefore we date the late Renaissance of France from about 1580 to about 1625.

In the course of the French architecture of the late Renaissance appeared two tendencies, that were already prepared in the high Renaissance, even with little definiteness. One of them represents a severe conception of architectural forms in the spirit of the antique and of the Italian theorists Vignola and Palladio; the other saw its models in the works of Michelangelo, of Alessi and of Ammanati and created its buildings in a free manner, frequently influenced by Flemish art. We have herein a reflection of the two main currents, that dominated the religious and political conditions of France at that time. In fact the severe classicism was chiefly defended and spread by the Huguenots. Both currents then proceed in France beside each other, sometimes combine and frequently refine and free the art designs on both sides. The unity and similarity of the artistic expression, that formed a distinctive mark of the later French art, was first attained in the time of Louis XIV, but it then appears as a piquant mixture of a severe academic classicism and a free and unrestrained Barocco.

2. The Most Important Monuments.

After the reign of Louis XII the chateau architecture stands in the foreground of artistic creation. In it was developed an extraordinarily animated activity. Today more than 30 chateaus may be counted, dating from the 16th century and in great part famous, that were not infrequently laid out on such a

a colossal scale, that they never came to completion. Many fell a sacrifice to the storms of the revolutions. With the abundance of monuments in the region of the Loire, especially preferred at that time, in Normandy and the south, we can only here refer to the most important works.

The early Renaissance took its start from the chateau at Amboise. There had been settled since 1495 an Italian colony of artists. From their cooperation with native masters proceeded the first French Renaissance on the Loire and at Gaillon. Among the Italian masters Fra Giocondo (called in 1505 by Pope Julius II to participate in the competition for S. Peter's), and after him Domenico Cortona (the latter participating on the chateaus at Blois, Chambord, Bury etc.) exercised great influence on French architecture. The chateau at Amboise is an imposing complex of buildings, enthroned on a high terrace above the Loire and guarded by massive round towers, on which only certain portions of the structure date from the end of the 15th and the beginning of the 16th centuries. On the eastern wing of the chateau at Blois erected by Louis XII, whose history extends back into the time of the Renaissance, the facade exhibits very remarkable Renaissance forms. Richer decoration in the spirit of the Renaissance is borne on the northern wing, built by Francis I at the beginning of his reign, whose court facade with the magnificent winding stairway (Fig. 294) indeed forms the most beautiful work of the French early Renaissance. About 1520 the same prince commenced the grand chateau of Chambord some miles north of Blois (Fig. 29b) as a regular plan with a principal building on a rectangular ground area, four mighty round towers at the angles and a detached stairway tower erected over the middle of the court (?) (with the famous double winding stairway, on which those ascending and descending did not meet), whose termination by a lantern rises above the unusually animated outline of the roof. As an architect of this chateau is named Pierre Nepveu. At the same time Francis I erected near Paris the hunting chateau of Madrid, a smaller rural residence, on an elongated rectangular ground plan without a court. The formerly proud but now completely demolished showy building had in its somewhat recessed

middle part, in the two lower stories being open round-arched arcades with terra cottas (by Girolamo della Robbia from Florence) in the spandrels of the arches, above these being also two enclosed stories with developed and noble Renaissance forms. The brick structure of the chateau of S. Germain-en-Laye near Paris, rebuilt in four stories about 1530 by Francis I on earlier and entirely irregularly arranged foundations, is severe and simply treated with a strong accenting of verticals by buttresses, the whole with a massive impression, almost like a fortress. As the darling creation of the architecture-loving king is to be regarded the chateau of Fontainebleau. In it was established a palace of immense extent and truly royal magnificence with an irregular grouping by retaining older parts. But in reality its artistic importance is exceeded by its historical. The chateau was frequently rebuilt and thereby lessened its unified effect. The exterior is comparatively simple with a thorough approximation to the Italian arcaded construction on piers with projecting pilasters and columns; but the interior was treated with extraordinary richness. The most important rooms from the early Renaissance are the ballroom and the gallery of Francis I. The ballroom (Fig. 296) is manifestly influenced by the style developed in Italy and cultivated by Giulio Romano (page 218), wooden paneling, stucco, reliefs and painting being employed in the richest measure. It is indeed the most nobly treated and distinguished interior of the time of Francis I. The gallery is 190.3 ft. long, comparatively narrow and low, and in the prominence of luxuriant panels, of cartouches, of figure and ornamental decorations, already permits the decadence of the style to become visible.

With these royal chateaus the country seats of the nobility do not keep equal pace in regard to the evolution of the Renaissance. In them the mediaeval forms are influential longer than in the former. First during the reign of Francis I on the chateaus of the nobles the basal traits of the feudal castle were gradually supplanted by attention paid to convenience, a comfortable and cheerful equipment. A very important early work is that of Cardinal George d'Amboise, the art-versed statesman of Louis XII, a zealous patron of the Renaissance, who built after 1502 near Rouen the unfortunately destroyed chat-

chateau of Gaillon, from which remains a drawing by Du Cerceau and the portal of the inner court, now set up in the court of the ecole des Beaux Arts in Paris. Guillaume Senault, a French master designed the plan for the main building and labored on its execution from 1502 to 1507. The new building adjoined the irregular and already existing castle; but the principal court was already arranged in octagonal form and surrounded on three sides by pier arcades. The architecture had great richness in the gay ornamental work of the early Renaissance. Entirely preserved in its original condition is the chateau of Chenonceaux near Blois, erected 1515-1555 on the river Loire and partly on a bridge across it. (Fig. 298). The chateau proper has a square ground plan without a court. The angles have slender round towers, and the chapel and library adjoin the nucleus of the structure. Here mediaeval and Renaissance forms were employed directly beside each other. The windows have late Gothic enclosures, heavy hermes before the middle jambs and Renaissance pilasters at both sides. Grand was likewise the chateau of Bury, also near Blois and built after 1515, a regular plan with square court of honor and rectangular garden behind the main building, evidence of whose splendor is given today only by still massive remains. Of the water chateau of Chantilly near Senlis, the main building from the time of Francis I is grouped irregularly around a triangular court, but later and about the middle of the 16th century, it was connected by a bridge with an outer court and garden surrounded by service buildings, and on the other side by a second bridge with the great agricultural court and other plans of gardens. The architecture of the portions of the building erected in the time of Francis I with all their richness already permit the recognition of a plain endeavor to simplify the forms in the sense of a severe observance of the classical laws of form. Extremely numerous and important monuments are contained in Touraine. (The river region of the Loire in regard to its development in the history of art may be compared with that of Tuscany in Italy, and likewise Normandy by the lavish decorative treatment of the architectural works with upper Italy). The chateau of Chateaudun near Orleans, restored from 1502 to

... a few Renaissance forms, but it has a winding staircase
... as a structural work. The character of the
... was begun in 1485, and rebuilt under Francis I.
... by clear simplicity in the ground plan and
... in the treatment of the details, and
... a harmonious representation of
... and delicate simplicity of the higher French
... ascending in graceful and dignified climbing. Lower
... the remaining numerous classes of the French early Renais-
... have the mixed style resulting from national and local
... principles, which violates the harmonious
... always referred to as the
... (page 245) the work of S. Pierre in
... by Jean Goussier. One of the
... It is still regarded as the finest
... as a solution with short walls and circle of
... with buttresses, flying buttresses and
... but otherwise entirely different in details
... work. (Fig. 247). Also S. Germain
... by Pierre Goussier, has an entirely
... on the exterior Gable and Corniche which are with
... the magnificent double colonnade of the facade
... fully expressed Renaissance forms
... by the facade of the Gothic church of S. Michael
... with three great round-arched portals and two towers,
... of different between the buttresses
... and crowned by corbelled domes.
... among the city houses are to be seen the tower of
... They indeed still retain the tower of
... but with a superior execution of the
... Inland of the city occurs a small
... and their corridors and with the new
... the Hotel de Ville. Of the prominent city houses the Hotel de Ville
...

1532 without ever being completed, exhibits in the facades only a few Renaissance forms, but it has a winding stairway included in the mass of the building, which scarcely finds its equal in grandeur and as a structural work. The chateau of Lu-de (Fig. 288) was begun in 145, and rebuilt under Francis I, completed in 1535, by clear simplicity in the ground plan and extraordinary refinement in the treatment of the details, affords in its entire appearance a harmonious representation of the self-conscious and defiant supremacy of the higher French nobility, appearing in graceful and dignified clothing. Likewise the remaining numerous chateaus of the French early Renaissance have the mixed style resulting from national and Italian architectural principles, which unfolds its picturesque charm on the always preferred court facades.

Among church buildings (page 248) the choir of S. Pierre in Caen, built 1518-1545 by Hector Schier, presents one of the most interesting examples. It is still arranged on the Gothic cathedral system as a polygon with choir aisle and circle of chapels, constructed with buttresses, flying buttresses and finials and the like, but otherwise entirely clothed in Renaissance forms and ornamental work. (Fig. 297). Also S. Eustache in Paris, begun in 1532 by Pierre Lemercier, has an entirely Gothic design, directly translated into Renaissance forms (Fig. 299), but on the exterior Doric and Corinthian pilasters with triglyph frieze (the magnificent double colonnade of the facade is from a later time.) Fully expressed Renaissance forms were received by the facade of the Gothic church of S. Michael at Dijon with three great round-arched portals and two towers, subdivided by four orders of pilasters between bold buttresses and crowned by octagonal domes.

Among the city halls are to be emphasized those of Paris, Orleans and Beaugency. They indeed still retain the former internal plan (page 154), but with a stronger accenting of the vestibule and stairway. Instead of the belfry occurs a small clock or bell turret. The facades are enclosed and furnished with pilasters and their cornices and with the new ornamental work. Of the prominent city houses the Hotel Ecoville (about 1530) in the picturesque old city of Caen presents a model ex-

examined with charming steepled court, around which are grouped
extraordinarily beautiful excursions. Interesting in style
is the house of Francis I at Paris, erected in 1527 in the vi-
sage of a tower near Fontainebleau, later transferred to Paris
and set up in the Chateau d'Orléans. (1527-1530). It is an archi-
tectural ornamented piece of unusual magnificence. Numerous
Renaissance houses, both stone and half timber structures, are
still found in Orleans, Bourges, Rouen, Angers, Caen, Viviers
etc.

At the transition from the early to the high Renaissance, we
have to consider an architect, who has been attributed to us a kno-
wledge of French chateaux by his architectural drawings, Jac-
ques Androuet du Cerceau (1530-about 1585). He chiefly became
known by his rich activity in art literature, was a refined and
educated artist, but so-soberly appeared practically; at first
and no important architectural work can be attributed to him
with certainty. In the year 1550 he designed an ideal plan
for a chateau, that still entirely exhibits the loose connect-
ion of the separate structures of medieval castles in plan.
But these are entirely closed in Renaissance form.

The high Renaissance (1550-1600) is characterized in the archi-
tecture of two great masters of French architecture, which a
definitely influenced its development. The first of these was
Pierre de la Source. Shortly before his death, Francis I came
to the decision to erect an imposing new structure on the site
of the old medieval castle, that he had torn down. He entrus-
ted this to the refined Pierre Lescot (1515-1570), born in Pa-
ris and educated by the study of the antique architectural mon-
uments of Rome. He changed a design which had already been
made. Of this the master, who had charge of the building from
1564 to 1578, erected the southeast angle (Fig. 101), as the
facade system he employed on the inner and higher court side
(Fig. 102). The facade system, the lower one with an arcade, corre-
sponds to the windows and doorways. Above the latter he
erected the round windows, which later served as a base for
towers and were termed "ox-eyes" (oeils de boeuf). The upper

example with charming arcaded court, around which are grouped a great hall and the living apartments, and with a facade of extraordinarily beautiful proportions. Interesting in style is the house of Francis I at Paris, erected in 1527 in the village of Moret near Fontainebleau, later transported to Paris and set up in the Champs Elysees. (Fig. 300). It is an architectural ornamental piece of unusual magnificence. Numerous Renaissance houses, both stone and half timber structures, are still found in Orleans, Bourges, Rouen, Angers, Caen, Viviers etc.

At the transition from the early to the high Renaissance, we have to consider an architect, who has transmitted to us a knowledge of French chateaus by his architectural drawings, Jacques Androuet de Cerceau (1510-about 1585). He chiefly became known by his rich activity in art literature, was a refined and educated artist, but scarcely appeared practically; at least no important architectural work can be attributed to him with certainty. In the year 1550 he designed an ideal plan for a chateau, that still entirely exhibits the loose connection of the separate structures of mediaeval castles in plan, but these are entirely clothed in Renaissance forms.

The high Renaissance (page 249) is characterized by the chief works of two great masters of French architecture, which definitely influenced its development. The first of these works is the Louvre. Shortly before his death, Francis I came to the decision to erect an imposing new structure on the site of the old mediaeval castle, that he had torn down. He entrusted this to the refined Pierre Lescot (1510-1578), born in Paris and educated by the study of the antique architectural monuments of Rome. He planned a design with four wings having a middle and end pavilions, grouped around a square court. (Fig. 301). Of this the master, who had charge of the building from 1546 to 1578, erected the southwest angle (Fig. 302). As the facade system he employed on the inner and richer court side (the external facade toward the Seine exhibits great simplicity) two corinthian orders, the lower one with an arcade, between which lie the windows and doorways. Above the latter he arranged the round windows, which later attained to such great favor and were termed "ox-eyes" (oeils de Boeuf). The upper

and windows having eaves, above which was a small triangle on
a half story. The roof on this side low and the chimney
ends project out little. Only the eaves were an exception
from this. It received above the half story further an upper
story with the height of the principal story and with high cor-
nered windows and a great roof with monumental chimney
ends. This aspect of the facade was regarded as a model exam-
ple of French palace architecture and was frequently imitated
on numerous buildings in the succeeding period. The rivalry
acknowledged ornamentation was by Jean Goussier (died about 1555
in Italy). France's greatest sculptor, but who was likewise
thoroughly acquainted with architecture, and was in part prac-
tically employed as an architect. Lescot was a highly col-
orful artist in refined design, who understood how to combine all
elements of architecture in the noblest treatment for the high-
est purposes, the most beautiful of the world's art.
The finest fruit, that the Renaissance produced on French soil
after the purifying of the excessive art of France I by the
classical feeling form.

The second great master of the French Renaissance is
Philippe de l'Orme (about 1515-1570), quite differently con-
sidered in comparison to Lescot, yet no less important and even
better known from his many-sided activity as architect, civil-
ian and theorist. After a long stay in Rome already commencing
and before his 30th year, where he measured and drew the anti-
que architectural monuments, he returned to France about 1545,
and the same year entered the service of Henry II, who associated him with
under superintendent of the most important royal buildings.
One of his early works is the chateau of Anet (after 1550), in
which work of the master, an entirely unimpaired expression.
The principal building is erected around a square court to which
the front is formed by a portico with four columns, the balcony
is a loggia, with a balcony in the middle of the front
facade de Anet the construction to which before the year

with windows having caps, above which was an attic treated as a half story. The roofs on this wing are low and the chimney caps project but little. Only the pavilions make an exception from this. It received above the half story further an upper story with the height of the principal story and with high round-arched windows and a great roof with monumental chimney caps. His system of the facade was regarded as a model example of festal palace architecture and was frequently imitated on numerous buildings in the succeeding period. The richly sculptured ornamentation was by Jean Goujon (died about 1555 in Italy), France's greatest sculptor, but who was likewise thoroughly acquainted with architecture, and was in part practically employed as an architect. Lescot was a highly cultured artist in refined design, who understood how to combine all elements of architecture in the noblest treatment for the highest magnificence. His court facade of the Louvre appears as the ripest fruit, that the Renaissance produced on French soil after the purifying of the capricious art of Francis I by the classical feeling form.

The second great master of the French high Renaissance is Philibert de l'Orme (about 1514-1570), quite differently equipped in comparison to Lescot, yet no less important and even better known from his many-sided activity as architect, engineer and theorist. After a long stay in Rome already commencing before his 20 th year, where he measured and drew the antique architectural monuments, he returned to France about 1536, and was there first employed as a fortification architect, and in 1548 entered the service of Henry II, who appointed him the upper superintendent of the most important royal buildings. One of his early works is the chateau of Anet (after 1552), in great part destroyed in the revolution, and which Henry caused to be built for Diana of Poitiers. This work is the most original work of the master, an entirely uninfluenced creation. The principal building is grouped around a square court to which leads an imposing gateway (Fig. 303). The columnar orders are here employed, still entirely in the character of the Italian Renaissance. About 1564 de l'Orme received from queen Catherine de Medici the commission to erect before the gates

of Paris a new château, the Tuileries (so-called from the tile-works located on the site), in the vicinity of the Louvre. The master designed a ground plan as an enclosed rectangular design with an imposing main and four smaller courts. (Fig. 301). The construction began with the middle pavilion of the garden facade in massive proportions and in the greatest magnificence. On the facade (Fig. 292) he employed the "French order" invented by him * and described in his principal work. (Page 251). The pavilion received two high stories with Ionic columns in the lower and Corinthian pilasters in the upper story, above this being a half story with small round windows and a dome with a crowning lantern as a roof. The adjoining wings were one story arcaded buildings on piers with a roof story treated as an attic, on which high windows were arranged on wide and low bases in rhythmic alternation, so that the facade received a very animated crowning line. De l'Orme, besides being an architect, also as a learned theorist developed a very abundant activity. He was a distinguished constructor. By means of the system for roofs named after him, he spanned halls of entirely unusual width, indeed by a well calculated joining of timbers in a great arch, thus a method of construction generally employed 300 years later for great railway and exhibition halls. De l'Orme wrote several valuable works on architecture, among them also two books on stonecutting, that for a century formed the best and almost the sole treatise on the subject.* * In artistic respects in comparison to Pescot, he inclined toward a dryer and more Barocco conception, to broken entablatures, intersections and a freer loosening of the members, while Pescot excelled him by nobility of forms and refined feeling for proportions and the forms of details.

** Actually the order "invented" by De l'Orme is merely a more tasteful form of the columns and pilasters with rusticated bands already employed by Sanmicheli.*

** * In France the enjoyment of technically perfect solutions and perfection in execution led to a refinement in technical procedures in all domains of architectural construction (as polishing the surfaces and mouldings of ashlar and cornices), and to a very high development of the science of stonecutting,*

that branch of architecture, which concerns the fixing of the bond and the size and form of the different stones for heavy construction (particularly at intersections of vaults, in stairways and the like), with regard to the laws of statics. Thus straight arches (horizontal lintels composed of voussoirs) and trumpet vaults became more common in France than in other countries, and indeed were executed in a masterly way, the latter as conical or spherical vault pendentives beneath projecting parts of the building, for example when angles of the structure of the upper story project above angular corbellings from the ground story.

After the death of De l'Orme (1570) Jean Bullant (1515-1578), who resembled him in literary activity and also in many other respects, carried on the Tuileries further, and likewise in his youth had made studies of the antique architectural monuments of Rome. He entirely retained the conception of De l'Orme, but was compelled to cease his work after two years, since the queen stopped the building of the chateau in the year 1572 for superstitious reasons. The pavilions of the two wings of De l'Orme's structure executed by him are later, and like that are so greatly transformed -- and not to their advantage -- that one can scarcely longer recognize his participation. Bullant was the builder of the chateau of Ecouen located some miles north of Paris (about 1531-1564), that belongs to the best works of the French high Renaissance. The chateau was commenced by a master otherwise unknown, Charles Billard or Baillard. Its ground plan shows a great square court, surrounded on four sides by comparatively low wings, the front one of these being treated as an arcade gallery opening inward. At four angles stand boldly projecting pavilions, that in the facade at the left forming the chapel. By small and unsymmetrically added small stairway towers in the angles of the pavilions, the strong accenting of the dormers and chimney caps, as well as the quite mediaevally divided windows of the chapel, the chateau received a waft from the spirit of the French Renaissance. The interior (Fig. 304) had a splendid equipment, as contemporaries and later writers emphasize with praise, but it was in recent times strongly restored, like the entire chateau otherwise.

The remaining section, however, further produced a series of important changes by means of less important details, and the latter in general and details to the chief tendencies evolved by the great masters and to their models. Above the elements of the epoch of this time is to be mentioned the character of Veronese in Venice, as prominent in magnitude and splendour, a work of great scope, that consists of four wings enclosing a square court with strongly emphasised arched pavilions and a novel internal structure, showing in the architecture a close connection with the selection of many Baroque elements.

The Baroque style, however, is not to be identified with the character of the early Renaissance in regard to their structure, but show the character of their time in the form of the details. Important works in church architecture in the epoch of the Renaissance are not to be specified.

The late Renaissance (from 1600) receives a heavy and dignified character, the prevailing tendency for striving after severe restraint and simplicity and the restoration of the rich external decoration. Indeed the portions of the Louvre erected by Henry IV, the Grand Gallery of which is connected with the Palais was finished, still exhibit a royal magnificence, yet without ever losing the external nature of the buildings of the Renaissance I and Henry II. As the architect is mentioned here and Jacques de Goussier, some of the previously mentioned architects, as well as Philibert Delorme and his son Louis. The great gallery of Fontainebleau, by the combination of brickwork with marble and the entire treatment of forms, bears a lesser resemblance. In Normandy, where the strict architecture of the Middle Ages was at home, this combination gives to a rich and decorative architectural development. (Museum of Beaumont in Fontainebleau of Paris). The most of the work of the late Renaissance is Palace (1615-1630), erected in Paris for Henry IV, which by Jacques Goussier, the principal master of the time, a building composed of one elongated wing with a great gallery (for which Henry created the famous painting and four severely projecting arched pavilions. The external architecture refers to the Renaissance conception of a

The remaining secular architecture further produced a series of important chateaus by workmen or less important architects, who adhered in design and details to the chief tendencies developed by the great masters and to their models. Among the chateaus of the nobles of this time is to be mentioned the chateau of Verneuil in Picardy, as prominent in magnitude and splendor, a work of Jean Brosse, that consists of four wings enclosing a square court with strongly emphasized angle pavilions and a heavy portal structure, showing in the architecture a free treatment with the adoption of many Barocco elements. (Fig. 305). The citizens' dwellings generally preserve the traditions of the early Renaissance in regard to their arrangement, but show the character of their time in the forms of the details. Important works in church architecture in the French high Renaissance are not to be specified.

The late Renaissance (page 252) receives a heavy and dryer character no longer fully corresponding to the French art spirit, by the prevailing tendency for striving after severe regularity and simplicity and the repression of the rich external decoration. Indeed the portions of the Louvre erected by Henry IV, the grand gallery by which a connection with the Tuileries was produced, still exhibit a royal magnificence, yet without ever attaining the artistic height of the buildings of Francis I and Henry II. As the architects are mentioned Baptiste and Jacques du Cerceau, sons of the previously mentioned Androuet, as well as Thibault Metezeau and his son Louis. The stag gallery of Fontainebleau, by the combination of brickwork with ashlar and the entire treatment of forms, bears a tasteless impression. In Normandy, where the brick architecture of the middle ages was at home, this combination rises to a rich and peculiar artistic development. (Chateau of Beaumesnil in Department of Eure). The most distinctive work of the late Renaissance is palace Luxemburg (1615-1620), erected in Paris for Maria de Medici by Salomon Desportes, the principal master of the time, (a building composed of one elongated wing with a great gallery (for which Rubens created the famous paintings) and four strongly projecting angle pavilions. The external architecture adheres to the Florentine conception of Ammannati,

indeed particularly to that of the court of palace Pitti (compare Figs. 293, 269). Likewise in the interior (Fig. 306) the Italian classicism tends to purify the crowded forms of the French Renaissance. The same master was likewise the creator of the principal church of French Protestantism, the chapel at Charenton (after 1606), a Huguenot structure in the form of an antique basilica (volume 1, page 117), and the facade of the Gothic church of S. Gervais at Paris (1616-1621), on which he employed the three classical orders with severely classical treatment for a powerful and indeed purely decorated building. (Fig. 307). Debrosse was a Huguenot, and as such was already inclined to a severe conception of architecture in the sense of a purely intelligible classicism. His ground principles were even made more severe by the requirements of Calvin, who for a long time exiled all sculpture and painting from churches. But otherwise secular and church architecture, besides the tendency pursued by it, adopted a second deviation therefrom, that indeed adopted the same basal elements, but in contrast to the simplicity there intended for show, frequently took to Barocco forms and often to luxuriand overloading. But always is it the genuine national spirit, which prevails in these works, producing that interesting combination of French classicism with Italian Barocco art, from which the art of the succeeding period arises.

The earliest influences of the Italian Renaissance upon the architecture of Portugal lands became perceptible in the first decades of the 16th century, even if only isolated. Against the indeed wonderful acquisitions of the Gothic style, native to these countries, and which included in itself so many elements of permanent worth, considerably enriched the national taste and composed a structural and artistic work of the first rank, the new forms could only advance with great difficulty. The art of the North indeed entered into a new phase in Portugal and soon afterwards also in sculpture, although at the time when the Renaissance appeared in Italy. But its progress was one different from that of the North, as also the entire intellectual life was a different one. By mentioning the northern a little more, we only a slight intellectual advance; the people had no understanding for the learned idealism. Still less could be stated for it as a "revival of the antique", which culture was not at home in the northern lands. The literary and artistic proceeding from their geographical and social conditions were not with artists could not return at their own will. In this case, they actually passed beyond their limits. The architecture of the southern countries did not follow the same to them by their own observation. Thus it was far less the architectural works of the antique, than those of the still undeveloped art of other lands, and particularly the new current of forms to masters advancing beyond the limit. But even this relatively favorable circumstance could not be utilized except by a small portion of the well-to-do artists in the North. The great majority of them were referred to a different intermediary. And this first followed from the conditions created in Portugal by Italian. In numerous cases Italian artists entered the service of monarchs, particularly in Austria and in south Germany as far as the slave state, who were in more intimate relations with Italy in relation to by direct connections. According to whether these masters supported the execution or only finished details, work was then carried out by northern masters, the Italian art

266

IV. RENAISSANCE ARCHITECTURE IN GERMANIC COUNTRIES.

1. General Basis and Style.

The earliest influences of the Italian Renaissance upon the architecture of Germanic lands became perceptible in the first decades of the 16th century, even if only isolated. Against the indeed wonderful acquisitions of the Gothic style, native in these countries, and which included in itself so many elements of permanent worth, completely satisfied the national taste and composed a structural and artistic work of the first rank, the new forms could only advance with great difficulty. The art of the North indeed entered into a new phase in painting and soon afterwards also in sculpture, already at the time when the Renaissance appeared in Italy. But its purpose was one different from that of the South, as also the entire intellectual life was a different one. By humanism the northern art experienced only a slight intellectual advance; the people had no understanding for its learned idealism. Still less could be stated for it as a "revival of the antique". Antique culture was not at home in the northern lands. The mighty impulses proceeding from their architectural and art monuments, most northern artists could not receive at their source. And if this were the case, they scarcely passed beyond upper Italy. The architecture of the southern countries did not become known to them by their own observation. Thus it was far less the architectural works of the antique, than those of the still undeveloped art of upper Italy, that transmitted the new circle of forms to masters advancing beyond the Alps. But even this relatively favorable opportunity could not be utilized except by a small portion of the path-breaking masters in the North. The great majority of them were referred to a different intermediary. And this first followed from the buildings erected in German lands by Italians. In numerous cases Italian masters entered the service of monarchs, particularly in Austria and in south Germany as far as the Slavic east, who were in more intimate relations with Italy by relationship or by church connections. According to whether these masters also superintended the execution or only furnished designs, which were then carried out by northern masters, the Italian art

subject was expressed in a paper of a weaker form. Perhaps was
the art kept so purely in the Italian sense, that only the for-
mation separates them from the works of the Italian Renaissance.
ce. A further intermediary of the Renaissance for the number
in masters was through France. But in this way the subject
and characteristics had been much changed by the French inter-
vention; the motives had lost the clearness and sharpness of
the original intention.

Of greater importance for northern architecture was the cir-
cumstance, that the Renaissance forms were first adopted by
artists for the backgrounds of their paintings, and carried
only by copper and wood engravings, being scattered in numerous
examples and prints. The frequently basic and miscellaneous
examples presented by these, whose sources mostly obtained the
motives only at second or third hand, were for the great mas-
ters of masters in German lands the chief sources of their know-
ledge of the "antique-like" forms. To these were added con-
siderable of the minor arts, that were introduced from France
and the decoration of books. Therefore it was no wonder, that
northern architecture from the first had a tendency to the an-
tique; it was hampered by its birth from the art industries. To
a greater and freer conception of the Renaissance with its
great problems of the treatment of interiors, as these were
for solutions in Italy, and to its classical architectural or-
ganism the northern master never came. There was lacking to
him just as much in understanding as in training for Italian
art. The writings of Vitruvius were indeed received with in-
terest. Already in the year 1556 a North-German master, Peter
et Koch of Ahrst, published the handbook of Vitruvius, and no-
on afterwards those of Sebastiano Serlio were issued in 1566.

had already advanced in the knowledge of the new world of form,
the first German translation of the five books of Vitruvius
appeared. Yet can the old repetitions more deeply into the an-
tiquity of architecture. The majority of architects, particularly
the stonecutters, were satisfied by collecting from wood cut-
tings and copper plates the greatest variety and abundance

spirit was expressed in a purer or a weaker form. certain works are kept so purely in the Italian sense, that only the location separates them from the works of the Italian Renaissance. A further intermediary of the Renaissance for the northern masters was through France. But in this way its purport and characteristics had been much changed by the French interpretation; its motives had lost the clearness and sharpness of the original impression.

Of greater importance for northern architecture was the circumstance, that the Renaissance forms were first adopted by painters for the backgrounds of their paintings, and particularly by copper and wood engravers, being scattered in numerous engravings and prints. The frequently hasty and misunderstood sketches presented by these, whose authors mostly obtained the motives only at second or third hand, were for the great majority of masters in German lands the chief sources of their knowledge of the "antique-like" forms. To these were added other products of the minor arts, that were introduced from France and Italy, utensils, furniture, intarsias, Italian prints and the decoration of books. Therefore it was no wonder, that northern architecture from the first had a tendency to the small; it was hampered by its birth from the art industries. To a higher and grander conception of the Renaissance with its great problems of the treatment of interiors, as these were for solutions in Italy, and to its clarified architectural organism the northern master never soared. There was lacking to them just as much in understanding as in training for Italian art. The writings of Vitruvius were indeed received with interest. Already in the year 1539 a Netherlandish master, Pieter Koek of Aelst, published the handbook of Vitruvius, and soon afterwards those of Sebastiano Serlio were issued in 1548 by W. Rivius, a Nuremberg theorist, thus at that time when men had already advanced in the knowledge of the new world of form, the first German translation of the five books of Vitruvius appeared. Yet men did not penetrate more deeply into the spirit of classicism. The majority of architects, particularly the stonecutters, were satisfied by collecting from wood engravings and copper plates the greatest variety and abundance of

in order to intercolate at this point a pressure of motives.
from each model could not be obtained an assured feeling for
the relief of the architectural materials for their relations
coordination in the architectural organism and for the scale of
of proportions.

These models were too far superior to influence a com-
plete change in the conception of art and an independent and p-
positive development. For this were lacking the necessary po-
sitive conditions, as well as intensive and uniformly in the in-
positive forces. The Renaissance forms come from the outside,
and indeed at a time when an innate necessity for a reform in
style did not exist. With the diversity of the Germanic races
of people, it must be accepted with variations. In any case
the Austrians, the French in south and middle Germany, and the
Italians stood slightly nearer to the Italian mode of feeling,
by direct relations with Italy or by their natural gifts and
structure of mind, than the inhabitants of the North. The art-
ists themselves were willing to give up nothing of the Gothic
and decorative acquisitions of the late Gothic, but also
on the other hand did not reject the new ornamental forms. They
counted not a few reserves with a few ornaments in their
hands. But such a momentary artistic reserve as practical and
pragmatic, who had definitely influenced the entire art of the
time, did not proceed from them. The artists to be solved
also lacked the character of unity. The previously mentioned
were well inclined toward the foreign influences of culture,
but there existed no organic unity in the national artistic
form of the Germanic countries, that as in France should have
taken a leading part in the art. The imperial cities and the
citizen class were conservatively inclined, and from these
the most commissions. The church seriously came into considera-
tion as an important factor in architectural activity. For a
need of church buildings only exceptionally appeared after the
with advances in Christian art in the preceding period. And
then also the religious inspiration of the middle ages, that
had found such an elevated monumental expression in the Gothic

ornamental forms for portals, columns, cornices and the like, in order to interpolate at pleasure this treasure of motives. From such models could not be obtained an assured feeling for the relief of the architectural members, for their harmonious combination in the architectural organism and for the scale of proportions.

These impulses were too far superficial to introduce a complete change in the conception of art and an independent and powerful development. For this were lacking the necessary basal conditions, as well as intensity and uniformity in the impelling forces. The Renaissance forms come from the outside, and indeed at a time when an innate necessity for a reform in style did not exist. With the diversity of the Germanic races of people, it must be accepted with variations. In any case the Austrians, the Franks in south and middle Germany, and the Belgians stood plainly nearer to the Italian mode of feeling, by direct relations with Italy or by their natural gifts and mixture of blood, than the inhabitants of the North. The artists themselves were willing to give up nothing of the structural and decorative acquisitions of the late Gothic, but also on the other hand did not reject the new ornamental forms. They counted not a few masters with rich endowments in their ranks. But such phenomenal artist natures as Brunelleschi and Bramante, who had definitely influenced the entire art of their time, did not proceed from them. The problems to be solved also lacked the character of unity. The princely employers were well inclined toward the foreign influences of culture. But there existed no princely court in the political subdivisions of the Germanic countries, that as in France should have taken a leading part in the art. The imperial cities and the citizen class were conservatively inclined, and from these came most commissions. The church scarcely came into consideration as an important factor in architectural activity. For a need of church buildings only exceptionally appeared after the high advances in Christian art in the preceding period. And then also the religious inspiration of the middle ages, that had found such an elevated monumental expression in the grand cathedral structures, had vanished from the minds of the people.

A historical feeling of the artists was devoted to creating a
mode and appeared in its place.

Under such circumstances could not be the matter of a single
and art conception, of unified emotions and a common feeling
of the new world of form in favor of a characteristic
development in style. Even the material has its limits to his
transfer to northern architecture. The Italian Renaissance

was substantially a cut stone architecture. But in the German
and countries wooden and half timber construction corresponded
to the climate and were native, which did not permit a correct
employment of the Italian treatment of forms. For the artist-
man's house it afterwards formed the most favored system of con-
struction. In the ancient domain of brick construction, how-
ever, continued in use. This indeed adopted out stone for

portals, window enclosures and cornices, but otherwise the ar-
chitect remained faithful to traditions for a long time.

For the more important buildings cut stone certainly was the
favorite material. On it the northern Renaissance spent its
best effect and its artistic worth; on it likewise most clearly
appears the peculiarity of its character.

The style of the northern Renaissance during the entire six-
teenth century is not characterized by the development of a definite

architectural system, but by mode and manner in which it appears
and employs the new structural members and particularly the re-
sult of ornamentation. The northern masters showed their interest
of a renewal of the worn out ornamental forms for their interior
and composition, still created entirely in the Gothic spirit.

They at first succeeded from the Italian Renaissance only what
seemed most striking to them, the antique-like ornaments: cor-
nices of columns, pilasters, consoles, dentils, leaf mouldings,
egg-and-dart mouldings, pearl beads and the like, and the like.

meanwhile, employing these innovations, according to their still
defective understanding of their origin, in a very loose way.

As the artists gradually became more acquainted with the
use of building. (Pfe. 306). The subdivisions by elements
and proportions, and particularly connected with such small
proportions, and particularly connected with such small

A democratic feeling of the citizens was devoted to secular needs and appeared in its place.

Under such circumstances could not be the mention of a unified art conception, of unified endeavors and a conscious realization of the new world of form in favor of a characteristic development in style. Even the material had its limits to the transfer to northern architecture. The Italian Renaissance was substantially a cut stone architecture. But in the Germanic countries wooden and half timber construction corresponded to the climate and were native, which did not permit a direct employment of the Italian treatment of forms. For the citizen's house it afterwards formed the most favored system of construction. In the ancient domains of brick construction, brickwork continued in use. This indeed adopted cut stone for portals, window enclosures and cornices, but otherwise its entire nature remained faithful to traditions for a long time. For the more important buildings cut stone certainly was the favorite material. On it the northern Renaissance shows its best effect and its artistic worth; on it likewise most clearly appears the peculiarity of its character.

The style of the northern Renaissance during its entire evolution is not characterized by the development of a definite architectural system, but by mode and manner in which it adopts and employs the new structural members and particularly the means of ornamentation. The northern masters thought first only of a renewal of the worn out ornamental forms for their internal compositions, still created entirely in the Gothic spirit. They at first accepted from the Italian Renaissance only what seemed most striking to them, the antique-like ornamental members of columns, pilasters, consoles, dentils, leaf mouldings, egg-and-dart mouldings, pearl beads and the like, and the ornament, employing these innovations, according to their still defective understanding of their organism, in a very loose way on the entirely mediaeval structure of their buildings and parts of buildings. (Fig. 308). The subdivisions by pilasters and their cornices were applied to the facades of quite different proportions, and particularly constructed with much smaller heights of stories, and especially to their stepped gables,

...the design was frequently repeated and the other ...
...also experienced numerous difficulties. Not only did
...remain in use above the narrow facade of the house.
...on the lower side appeared smaller and bolder above
...of the roof, especially very rich in treatment. In-
...of the facade formerly crowned the gable were symmetric-
...of (ornamental) projections (cornices). The inclined gables of
...in relation of the late Gothic case curves
...were curved in arched lines; with ar-
...curved gables or ornamental work were laid on
...the gables. Besides the gables the bay windows, in-
...at the entrance to the house, at the centre of all
...the gables frequently extending from the ground, also often in
...the other series projecting directly from the face of the wa-
...as a gateway tower. That the irregularly added to the ar-
...design, and for city hall houses of steps and un-
...copies from the original parts of the architectural decor-
...They were chosen in the new forms and particularly as-
...to the bay windows an ornate decorative and sculptured
...In the developed Renaissance the towers are struc-
...in square, subdivided by pilasters, covered by gables and
...A porch fronted and was enclosed by the portals. For
...the centre of the porch the round arch formed the rule in
...The tower was first architect-
...The windows mostly remained very simple
...in comparison with the portals. They terminated with a portico
...also in part with medieval forms of arches.
...they had remained the Gothic motifs.
...particularly the bay windows in the gables, down to about the
...and the late Gothic tracery in the gables
...of the bay windows. Likewise in common windows is this tra-
...even if with a transformation of the lines
...and details from the conditions of the Renaissance. (1891,
...356, 359). In general the structural and decorative orna-
...and was limited to certain essentially preferred structural ele-
...the, which thereby received an almost independent importance
...The gable is just as characteristic for the northern house
...as the tower for the northern church.

whereby the pilaster was frequently shortened and the other members also experienced numerous alterations. Not only did the gable remain in use above the narrow facade of the house,* but also on the longer side appeared smaller side gables above the edge of the roof, frequently very rich in treatment. Instead of the finials formerly crowning the gable were spherical or pyramidal projections (obelisks). The inclined eaves of the gable (indeed in imitation of the late Gothic ogee curves on the tracery gables) were curved in animated lines; with steps, fancifully curved bands or ornamental work were laid on the projecting angles. Besides the gables are bay windows, that rise over the entrance to the house, at the centre or at the angles frequently extending from the ground, also often in the upper stories projecting directly from the face of the walls as stairway towers, that are irregularly added to the architectural design, and for city halls flights of steps and balconies form the principal parts of the architectural appearance. They were clothed in the new forms and particularly gave to the bay windows an animated decorative and sculptured ornament. In the developed Renaissance the towers are structures in stories, subdivided by pilasters, covered by domes and lanterns. A rich treatment was enjoyed by the portals. For the opening of the portal the round arch formed the rule in the developed Renaissance. The treatment was less architectural than ornamental. The windows mostly remained very simple in comparison with the portals. They terminated with a horizontal lintel, but also in part with mediaeval forms of arches. On their enclosures they long retained the Gothic mouldings, particularly the deep hollows in the jambs, down to about one third their height, and the late Gothic tracery in the railings of the bay windows. Likewise in church windows is this frequently retained, even if with a transformation of the lines and details into the conceptions of the Renaissance. (Figs. 335, 359). In general the architectural and decorative ornament was limited to certain especially preferred structural parts, which thereby received an almost independent importance over the general organism of the building.

* The gable is just as characteristic for the northern house, as the towers for the northern church.

The form of the architectural details became the result of a very free treatment. The use of columns became general with the northern masters only in the advanced Renaissance, about the middle of the 16th century. They were not adopted in their classical forms, but all sorts of decorative accessories were given to them. The necessity of the column already derived ornamental decoration. (Fig. 830). The shaft was frequently furnished with overlaid channelled work in the lower third, the capitals being fluted and not seldom decorated by volutes (Fig. 831) or even spiral or lozenge patterns, especially as in Renaissance art. As a rule the entablature was not (Fig. 832); on the contrary the frequently swelled and arched capital of classical column (Fig. 833). The entablature already occurred in the early Renaissance of north Italy. (Fig. 834), and even more favorably, especially on the bay windows, as a rule the capitals were derived from the Corinthian capital of the Italian Renaissance, but the latter exhibited a fully original transformation. In general they were satisfied with a slightly more series of scrolls leaves, from which grew the volutes. Between the pilasters were inserted in the same manner, often with a twisted downward like leaves or they were entirely formed like them. The latter also found employment as free sculpture. The capitals mostly have a carved, heavy and frequently an entirely original treatment. The sculpture was often profiled like the cornice. Definite indications for the height and position of the ornament and height were not observed. If one meets with a certain indication according to fixed canon of form, nearly always is to be ascribed the caricatures of Italian masters or the direct influence of Italian models. Considered as a whole, the northern architectural works of the Renaissance remain far behind the Italian in regard to organic development, unity and in general. Artists of higher standing, who knew the Italian architectural works by personal observation, acquired less esteem for the native architecture, and at least in southern Germany, they seem to present a substitute for it by facade painting, or by painted channelled work.

The forms of the architectural details permit the recognition of a very free treatment. The use of columns became general with the northern masters only in the advanced Renaissance, about the middle of the 16th century. They were not adopted in their classical forms, but all sorts of decorative accessories were given to them. The pedestal of the column already received ornamental decoration. (Fig. 320). The shaft was preferably furnished with overlaid ornamental work in the lower third, the remainder being fluted and not seldom decorated by arabesques (Fig. 319) or even spiral or lozenge patterns, similarly as in Renaissance art. As a rule the entasis is wanting (Fig. 321); on the contrary the frequently swelled and again reduced baluster or candelabra column (Figs. 311, 332), that already occurred in the early Renaissance of upper Italy, (Fig. 212), enjoyed great favor, especially on the bay windows. As a rule the capitals were derived from the Corinthian capital of the Italian Renaissance, yet frequently experienced a truly awkward transformation. In general men were satisfied with a tolerably rude series of acanthus leaves, from which grew the dry volutes. Likewise the pilasters were treated like the columns, often being diminished downward like hermes or they were entirely formed like hermes. The latter also found employment as free supports. The cornices mostly have a careless, heavy and frequently an entirely capricious treatment. The architrave was often profiled like the cornice. Definite proportions for the height and projection of the different mouldings were not adhered to. If one meets with a careful graduation according to fixed canons of form, nearly always is to be assumed the participation of Italian masters or the direct influence of Italian models. considered as a whole, the northern architectural works of the Renaissance remain far behind the Italian in regard to organic development, unity and in enclosure. Artists of higher standing, who knew the Italian architectural works by personal observation, acquired less esteem for the native architecture, and at least in southern Germany, they sought to present a substitute for it by facade painting, when they covered the plain wall surfaces by a sham architecture animated by figures, or by painted ornamental work.

It is the internal decoration, however, the use of ornamentation
work is less extended over the whole, than concentrated on cer-
tain ornamental parts. The endeavor to treat each for a good
internal effect is thereby diminished. The great halls of the
palaces are mostly very low and are therefore out of
proportion (fig. 302); but as a rule they reach a very tasteful
of harmony by good lighting through groined windows, by the
materials employed, by the color treatment and the ornamentation
of the details, particularly of the doors, fireplaces,
sieves, bay windows and the like. In the technique, decorative
arts and the entire art illustrates, the northern architectural
and industrial workers show themselves to be masters of skill-
ful construction, thanks to their strict organization in the
guilds. For the walls in both the palaces and also the better
houses of the citizens, wood is the preferred material in the
form of fine paneling. In the ante-chambers the walls were treas-
uredly left white, but the doors received extremely impressive
enclosures (fig. 313). Wood was left in its natural tint or
put slightly stained. The enclosures of the doorways and the
paneling in the richer treatment (fig. 314) have an entirely
architectural elevation with engravings into base, pilasters
or columns with cornices and can like a pediment. Even the
masonry is not seldom imitated (fig. 315). The bands and
friezes are then more strongly expressed than in those archi-
tects. The end of the 13th century, and first in civil architec-
ture in the 14th century, and indeed mostly in a relatively
simple treatment. If the ceilings are not groined, then occur
on them painted or stuccoed bands as in the middle ages. The
interiors are diversified. With a richer treatment were con-
fined the wooden ceilings finished from Italy with divisions
into panels in the forms of squares, polygons, circles, stars,
rectangles with rounded corners and the like, that are con-
nected together by beams (fig. 316). The panels and friezes are
frequently treated with animated ornamental decorations. The
vaults were at first shaped still as timber and cross vaults,
but later as cross vaults without ribs. Secular architec-
ture is general made use of them only in subordinate rooms (ov-

23 In the internal decoration likewise the use of ornamental work is less extended over the whole, than concentrated on certain principal parts. The endeavor to first care for a good internal effect is thereby diminished. The great halls of the palaces are mostly very long and low and are therefore out of proportion (Fig. 352); but as a rule they reach a very tasteful harmony by good lighting through grouped windows, by the materials employed, by the color treatment and the charming handling of the details, particularly of the doors, fireplaces, stoves, bay windows and the like. In the technics, decorative arts and the entire art industries, the northern architectural and industrial workers show themselves to be masters of skilful construction, thanks to their strict organization in the guilds. For the walls in both the palaces and also the better houses of the citizens, wood is the preferred material in the form of high panelings. In the anterooms the walls were frequently left white, but the doors received extremely impressive enclosures. (Fig. 313). Wood was left in its natural tint or but slightly stained. The enclosures of the doorways and the paneling in the richer treatment (Fig. 312) have an entirely architectural elevation with subdivision into base, pilasters or columns with cornices and cap like a pediment. Even the rustication is not seldom imitated. (Fig. 313). The bands and framing are then more strongly expressed than in facade architecture. Stucco decorations commonly occur in the palaces toward the end of the 16 th century, but first in civic architecture in the 17 th century, and indeed mostly in a relatively simple treatment. If the ceilings are horizontal, then occur on them chamfered or moulded beams as in the middle ages. The interspaces are plastered. With a richer treatment were constructed the wooden ceilings imitated from Italy with divisions into panels in the forms of squares, polygons, crosses, stars, rectangles with rounded corners and the like, that are connected together by beams. (Fig. 314). The panels and frieze are frequently treated with animated ornamental decorations. The vaults were at first shaped still as ribbed net and cross vaults, but later as cross vaults without ribs. Secular architecture in general made use of them only in subordinate rooms (ov-

over the whole, especially in the lower part, and the
the following are the most characteristic features of the
the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the

In the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the
the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the

In the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the
the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the

In the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the
the lower part of the whole, especially in the lower part, and the
the following are the most characteristic features of the

over entrances, vestibules, passages etc.) and they are then The buildings more closely approximating the Italian tendency also employ tunnel vaults and domes. These received ornamental subdivisions with regard to the walls by continuing the pilasters in cross arches, or in addition to the groin lines, or even in an entirely ornamental treatment.

In the interiors of the churches stucco found abundant employment. On the same church buildings, that were still designed in Gothic style, the treatment remained comparatively simple. To the walls was occasionally given an externally conceived decoration, such as developed on the contemporary secular architecture. Renaissance pilasters and half columns, not infrequently commencing at the height of the windows and resting on consoles, bear a main cornice from the rise of the net or cross vaults. (Fig. 315). The ribs were enlarged by egg-and-dart and leaf mouldings, pipes and other Renaissance motives. In the churches, which adhere more closely to the Italian, the pilaster system is completely executed. Also the entire decoration then receives stronger impulses from Italian art. The chief ornament of church interiors lies in the altars, rood screens, pulpits, organ galleries, choir stalls, tombs and epitaphs. They are all clothed in the form system of the Renaissance, frequently rise to a considerable artistic height, and not rarely are of unique beauty. On the choir grilles preserved in many churches also appears the peculiar style of the northern wrought iron technics. It is characterized by round rods rolled in spirals, its numerous passes, by the beating out of the bars at definite and rhythmically arranged places into flat decorations in the form of grotesques and fanciful animal forms, and in the endings of such leaves and conventionalized flowers. (Fig. 316).

The ornament is derived from the Italian, particularly the Lombard Renaissance, that either found entrance directly or through Burgundy and France, but soon begins an independent development, though varied in kind and style as well as in the different countries. The earliest ornamental form penetrating from Italy is the arabesque. (Page 192). The Netherlandish and particularly the Flemish early Renaissance adhered so closely to the Italian conception, that for certain works

one might believe, that they were executed by hand.

in the middle and the last forms respectively in

and in Westphalia, but there with a somewhat more defined and
prolonged treatment of form. In southern Germany the design
is more partly transformed into heavy and clearly defined
and scrolls of the same and mostly limited to one form
and out of vases, globes and sometimes (as in the
fig. 817) it is especially notable in small and
river, when the scrolls are often combined in small volu-
tes. (fig. 818). In the treatment of the scrolls and
it is partly dependent on the Netherlands and Westphalia.
and partly on southern Germany. Besides the scrolls in the
modern Renaissance is quite commonly employed a long slender
and three lobed leaf, borrowed from the leaf curl of the
acanthus. (fig. 819). In the much used scrolls of the
leaf form the basis of the ornament. In the interior the
ornament changes entirely into a pure flat form and thus to
acanthus (volume I, page 824), which is also found frequently
in the Italian Renaissance. (fig. 820). Nearly allied to
the acanthus is the overlaid ornament, developed about the mid-
dle of the 15th century and most characteristic of the northern
Renaissance. * It consists of linear interlacing
to bands and very slightly projecting, then connected by
by stems and by the half bands, scrolls and the like, and
then to be fastened in a manner resembling a twisted scroll.
plates. (fig. 821). It has the effect of a rolled
bars produces the rolled work. (fig. 822). This is in a
strongest expression in ornamental sculpture, and so-called cor-
nices, * where two or more plates are laid over each other
through each other. Stereometric forms like rolled scrolls,
bands, scrolls of fruit and the like, have served for
models, as also on overlaid decoration.

one might believe, that they were executed by Italians. Besides there is general a somewhat dry treatment with broadly pressed foliage and scroll work, that plays around the medalion arranged at the middle and the head forms projecting in strong relief. The same ornament occurs on the dower Rhine and in Westphalia, but there with a somewhat more refined and graceful treatment of forms. In southern Germany the acanthus was partly transformed into heavy and fleshy leaf sheaths, the scrolls of dry shape and mostly limited to one turn growing out of vases, dolphins and cornucopias (Basle and Augsburg), partly was it carefully modeled in small and graceful motives, when the acanthus leaf often terminates in small volutes. (Nuremberg). In the treatment of arabesques north Germany is partially dependent on the Netherlands and Westphalia, and partly on south Germany. Besides the acanthus in the northern Renaissance is quite commonly employed a long stemmed and three lobed leaf, borrowed from the leaf outline of the acanthus. (Fig. 317). In the much used sketches of the important Westphalian engraver Aldegrevier (1502-about 1555) this leaf forms the basis of the ornament. In the intarsias the ornament changes entirely into a pure flat form and thus to Moresco (volume 1, page 214), which already found frequent use in the Italian Renaissance. (Fig. 318). Nearly allied to the Moresco is the overlaid ornament, developed about the middle of the 16th century and most characteristic of the northern Renaissance. * It consists of linear interlacings widened to bands and very slightly projecting, then connected together by stems and by the nail heads, screws and the like, appearing to be fastened in a manner recalling perforated metal plates. (Fig. 319). If the ends project and are rolled up, this produces the rolled work. (Fig. 320). This finds its strongest expression in ornamental shields, the so-called cartouches, * * where two or more plates are laid over each other, are cut out like overlaid ornaments and appear to pass through each other. Stereometric forms like paneled ashlar, pyramids, sphynxes, spheres, stars, grotesques, masks, lion's heads, garlands of fruits and the like, there serve for ornaments, as also on overlaid decoration. By overlaid and rolled

ornament the foliage ornament of the early Renaissance is almost entirely supplanted. These dominated the minor arts in wood and metal sculpture in the same manner as the ornamental forms of the architecture, indeed until the beginning of the 17 th century. Then it passes into the ugly gristke style, * * * that on its part forms a precursor of the Barocco style and directly leads to that. The painting also makes use of the grotesques (page 192) derived from Italy, for the decoration of ceilings and vaults, more rarely for the ornamentation of walls. Yet the grotesques did not extend beyond the German states (Austria and southern Germany), and there, as a rule, was executed under the lead of masters, who had received their training in Italy. (Fig. 339).

* As the original creator of overlaid ornament is to be regarded the Nuremberg sculptor, form-cutter and ornamental draftsman, Peter Flötner, with whom the first design originated about 1540. He died in the year 1548.

* * Cartouche is a pasteboard roll.

* * * The gristke style is also denominated "ear muscle" style, since it transferred the scholl-like round forms of the human ear to frame and ornamental work.

Among architectural works chateau architecture stands in the first rank. In the 16 th century was completed the transition from the castle to the chateau; but only in the second half of the 17 th century did chateau architecture lose the reminiscences of defensive architecture. At first the chateaus are mostly transformations and extensions of earlier designs. For new buildings the French chateau architecture was in general a model. Larger designs almost always received two courts (lower court as the external, and court of honor as the internal court); on small chateaus men were satisfied with one court (court of honor), around which on three or four sides are grouped the wings of the building. For new buildings regular plans predominated, even if strict symmetry be not always considered. The angles were accented by towers or bold frontispieces. For the arrangement of the ground plans, also more than before was regard for convenience determinative. In the mediaeval castle passage occurred through the

... how overgrown were the gardens, even if not always. In
 primarily castles and residences were situated in the hills, the
 the mountains occurred in the hills only as isolated
 towns in the course of the valleys. In the southern countries
 the most castles mostly have a rectangular structure.
 where the position as castles from the communications for
 the rooms (Fig. 321). But further north the castles have
 and little corresponding to the Italian castles. To the
 active spirit even there was wanting the same essential
 as peculiar to the Italians. Only some castles in
 the old castles at Stuttgart with some of Italian castles in
 northern castles was from that of the Italian castles in
 that was in fact, now those old and new motives were mixed
 without restraint and placed beside each other (Fig. 322).
 faced with all similarity we cannot deny to their work a
 secondly of the same order. The Italian seemed even to give
 the the same dwelling to a castle; but in the north even
 the castle's character remained rather the character of a civil
 man's house in design and treatment. The house, however, was
 mostly adapted for the official and non-residential work, the
 second story for the court, and the third for the residence.
 the most important rooms were the audience room with a balcony,
 the great hall and the council of the castle. The council
 and six of the living rooms were still kept in the middle
 limits. Besides these and the halls only the vestibules, the
 rooms and passages were artistically treated in the form
 of the Renaissance. But the greatest change really came from
 the Renaissance in the beginning of the 16th century.
 (Fig. 323). The citizen's dwelling in the cities of southern Ger-
 many, in a rich construction, opened to the court with a
 room, had already developed in the Renaissance period. The
 in north Germany and in Denmark, the entrance doorway leads
 to the main entrance, the entrance doorway with a
 a large, that is, the entrance doorway of the house.

rooms. Now passages were arranged, even if not always. In princely chateaus men intentionally adhered to the rule, that the apartments occupied by princes should only be reached through rooms in charge of servants. In the southern countries the great chateaus mostly have a rectangular arcaded court, where the porticos as corridors form the communications for the rooms. (Fig. 321). But farther north the chateaus have but little corresponding to the Italian palaces. To the creative spirit even there was wanting the grand monumental sense peculiar to the Italians. Only compare certain parts of the old palace at Stuttgart with such of Italian palaces in order to realize how far removed the art conception of the northern masters was from that of the Italian associates in time and in art, how those old and new motives were mingled without restraint and placed beside each other. (Fig. 322). Indeed with all simplicity we cannot deny to their works a strongly picturesque charm. The Italians sought even to elevate the simple dwelling to a palace; but in the North even the prince's chateau retained rather the character of a citizen's house in design and treatment. The ground story was mostly utilized for the official and housekeeping rooms, the second story for the court, and the third for the servants. The most important rooms were the audience room with anteroom, the festal hall and the chapel of the chateau. The number and size of the living rooms were still kept within moderate limits. Besides these and the halls only the vestibule, stairways and entrances were artistically treated in the forms of the Renaissance. But the chateau chapels mostly still remained Gothic until in the beginning of the 17th century. (Fig. 324). The citizen's dwelling in the cities of south Germany, in a rich construction, adhered to the court with porticos, that had already developed in the Gothic period. The ground story contains the business and warerooms. The living rooms are found in the upper story; they frequently have a spacious and tastefully treated anteroom. In the Netherlands, in north Germany and in Denmark, the entrance doorway leads into a high vestibule, the hall, and in narrow buildings into a lobby, that occupies the entire width of the house. Direct-

Directly from the vestibule or lobby a stairway leads to the upper story. This is treated with particular attention, partly as winding stairs, partly as a straight flight. Already early appear picturesque designs. By these and the galleries, which lead to the adjoining rooms of the upper story, the vestibule, already imposing by its height, acquires a very tasteful effect. In city halls the 16th century is especially rich. They exhibit the endeavors of the cities to impressively treat the seat of the city government. As in the Gothic period, the ground story has large porticos and vaulted rooms for merchants; the upper story, to which a great external flight of steps often leads (Fig. 323), contains the great citizens' hall, rooms for the sittings of the small and the large councils, rooms for writing and for the court of justice. Not seldom is a tower connected with the building, as in the middle ages. The equipment is frequently splendid, particularly in the great hall of the citizens. The universities precede the other public buildings. In their ground plans their original relations to the mediaeval monastery designs cannot be denied. The buildings for commerce and traffic, exchanges, (bourses), granaries, guild houses and the like, are mostly so changed internally, that their original condition can no longer be recognized.

Church architecture did not attain to a proper development in the northern Renaissance. The violent religious wars, that disturbed the period, were as unfavorable as possible to its suitable evolution. Until in the last quarter of the 16th century and even later in the 17th century, indeed until the end of the 30 years' war, men adhered in general chiefly to the Gothic character, both in pure external design and in combination with Renaissance elements. The ground form was still the hall church with choir aisle or a simple choir. From about 1580 onward the Jesuits developed great architectural activity. But they did not transfer the plan scheme of the Jesuit church in Rome to the northern churches, as one might believe, but especially in the Netherlands and on the Rhine also built three aisled churches after the mediaeval arrangement. These churches always permit the recognition of

6. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

a certain greatness in the architectural disposition. Otherwise the northern churches in the majority lack in design and equipment a treatment intended for an impressive internal effect.

With new endeavors Protestantism, arising in the Renaissance period, took up the plan. In the Catholic divine service the offering of the mass forms the most important part of the church worship, in the Protestant the sermon, on the contrary. A suitable arrangement of the pulpit was therefore first to be cared for, and indeed in such wise, that all members of the congregation and from all places in the interior of the church could see and properly understand the preacher. Therefore thought must be taken to give the pulpit as central a location as possible in the interior of the church. For administering the communion was also retained a restricted and indeed very simple altar service. The protestant divine service therefore has two central points, to which must be directed the eyes of the devout, the pulpit and the altar. Men had the problem of so arranging these, that both could be seen well and at the same time, whenever possible. The entire architectural design of the church must be arranged accordingly. The Renaissance never reached a completely satisfactory solution of this problem; perhaps it has not been found to this day, even if some church buildings of the later time have come very near to it. Indeed attempts were not wanting to take the central structure as the ground form of the Protestant church. Yet a definite normal form has never been attained. Frequently the organism remains the ancient one, and only the position of the altar, which chiefly appears as a table simply constructed of stone, as well as the always fixed seats, directed towards the pulpit and altar without regard to any definite axis, and the insertion of galleries with similar seats gave the interior a changed character. In the late Renaissance the hall church with a small altar niche, at whose sides stand beside the altar the pulpit and the font, with the organ gallery at the opposite end, became a commonly occurring form of the Protestant House of God. * The ground plan thus received the form of a rectangle, where the altar

was either placed at one end, whose corners were then generally cut off, or at the middle of one longer side. For this plan the chapel in the old chateau at Stuttgart (after 1533) became typical. (Fig. 324). It consists of a rectangular hall with polygonal bay window niche on the longer side, in this being the altar, beside on the angle of the wall being the pulpit. On the opposite longer side and at the ends are arranged galleries. Thus the requirement was satisfied in a proper manner, that the altar and the pulpit should be seen well from all places.

* *Debrosse, the chief master among the Huguenots had chosen for his chapel at Charenton (page 284) the basilican plan of the antique with the alteration, that galleries in two stories extended around the high central interior.*

To the simplicity of the divine service corresponded a great reduction in the treatment. The artistic effect of these halls for preaching therefore remained far behind that of the religious buildings of Catholicism. Certainly there also originated in the Renaissance some Protestant church buildings worthy of consideration. But Protestantism first aspired to grand and monumental effects in some structures of the succeeding period.

The development of the northern Renaissance shows us, that even in it, as in Spain and France, Gothic and antique ornamental members at first often directly appeared together, were gradually better combined with contemporary additions, and slowly fused together. This mixture of styles in the native art with the new form elements denotes in all countries the character of the early Renaissance. It corresponds in the history of the evolution to the Quattrocento of upper Italy. Its buildings are full of picturesque charm and frequently with an almost overloaded decorative richness. In the course of the 16th century the forms were clarified. About the middle of it is developed the proper northern Renaissance, the high Renaissance. At about the end of the century again occurred a change in style. At the courts and the buildings under their influences the Italian tendencies in their more severe and scholastic conception acquired new power and finally

the control. The late Renaissance commenced. But in the art of the people, particularly in the more distant provinces, the mediaeval motives were retained until in the first quarter of the 17 th century, in which they completely disappeared under the gradually established dry elements of the beginning Barocco style.

II. Evolution in the Different Countries and the Monuments.

1. The Netherlands.

To the Netherlands belonged in the 16 th century, besides the existing kingdoms of that name and of Belgium, also Luxemburg and some adjacent provinces of France, being altogether 17 provinces, each one of which had a certain independence in its government. In the northern provinces predominated the German language and culture; in the southern the Romanesque-France (Walloon) had the preponderance. Under Charles V (page 242), who was himself born and brought up in the country, it reached extraordinary prosperity by the flourishing commerce and industries. But under his son Philip II began about 1566 the insurrection of the Netherlands against religious and political despotism, and then originated those long and bloody wars for freedom from Spanish rule, as a result of which the northern Netherlands (Holland) freed itself from Spain, while the southern provinces remained under Spanish rule. These were held by Catholicism; but Holland became Protestant. The national and religious opposition between the southern and northern Netherlands likewise impressed itself on the architecture.

About the end of the 15 th century (about after 1480) the first isolated Renaissance motives under Burgundian influences penetrated into the flourishing late Gothic of the Netherlands; but only with the beginning of the 16 th century did they acquire a greater extent. Belgium preceded in time. Already before the end of the second decade buildings arose there, on which the architecture exhibits the predominating character of the Renaissance. In the thirties appeared an earnest endeavor for a more severe architectural subdivision, even if also on the whole only a certain sham organism was at-

attained, which was broken by details of independent creation. The ornament (acanthus arabesques) at about this time was already surprisingly pure. About 1540 began a zealous study of the Italian theorists, from then onwards expressed in the ecclesiastical and secular architecture, in the former particularly by the architectural activity of the Jesuits, an ever deepening influence of Italian art, which also continued when the Belgian architecture -- about 1610 -- passed into the Barocco.

The first architectural monument of the Belgian Renaissance was designed by a Burgundian master, Guyot de Beauregard, whom Margaret of Austria, Stadtholder of the Netherlands, took into her service for the building of her palace at Mechlin. (1517). The execution was supervised by Rombout Keldermans of Mechlin, the first important Netherlandish architect of the Renaissance, but who still stood entirely on the stage of the transition from late Gothic to the Renaissance. The palace is a simple structure with somewhat timid and predominating French forms. Its principal effect lies in the two great gables of the front and side facades. The house zum G. Grossen Salm (great salmon) in Mechlin (1519) by Jan Borremans from Brussels already shows on its very narrow facade three orders gracefully executed with rich ornamental decoration. The beautiful old chancery building at Bruges (1535-1537) was designed by Johann Wallot and built by Christian Sixdeniers (Fig. 325), has two orders with stronger lines in general. But the cornices are still very restrained and profiled without intelligence. On the gables the Gothic reacts in the curves and the crockets. But the ornament scattered over the facade (acanthus arabesques) is already entirely pure. The Belgian Renaissance exhibits its full maturity in the stately city hall at Antwerp (1561-1565) by Cornelius de Vriendt or Floris, * a pupil of Giovanni da Bologna, and Paul Snyderinx. On it the Italian symmetry is combined with the northern art in design in a very happy manner. (Fig. 326). The palace-like facade extending in width and broken by a richly subdivided middle projection has above a portico-like rusticated lower story two small pilaster orders resting on the pedestals of the window parapets and a crowning half story, treated as an open

gallery. The strongly aspiring middle building passes into a tower-like termination. The general impression is entirely Netherlandish. More details in the restrained academic tendency may be seen on the justice building at Fumes (after 1612) and falling in the 17 th century. Its two story facade has in the ground story the Doric and in the upper story the Composite pilaster order in noble, though also freely handled treatment. This building is the last important work of the Belgian Renaissance. The palace at Brussels (completed 1564) built for the cardinal and statesman Granvella still in the 16 th century by Sebastian van Noyen (died 1557) and his son *Jacob* van Noyen (died 1600) exhibits a direct transfer of the Italian late Renaissance to Belgian soil by the architects. The elder van Noyen had made studies in Italy and had published (1562) a great work with drawings of the buildings of antique Rome. The art tendency introduced by them found no other followers.

** Coraelius Floris is designated as the inventor of the cartouche; but the cartouche appears to be actually of older date. On the other hand, he is the creator of a distinct ornamental style, named after him the Floris style, that is characterized by simple cartouches in combination with hermes, festoons, bands and similar motives.*

In Holland the old traditions were longer and more strictly preserved. True Renaissance buildings first originated there about the middle of the 16 th century. On them from the beginning appeared an energetic striving for national independence. Holland art is an expressed assertion of the citizens' spirit prevailing there. Therefore it is less ideal than realistic and pursues definite external aims. If these are attained, then a harmony in the work is cared for in regard to the formal treatment. And therefore its works have an innate truth, a striking expression of their purpose, such as not always attained in other creations, in which the endeavor for monumentality predominates.

In general architectural activity in the second half of the 16 th century was greater in the Holland provinces, than in the Belgian. The Holland house as the Belgian showed a stron-

strongly emphasized vertical tendency, indeed in a reaction of the Gothic, which had become deeply rooted in the people and had produced in the city halls works, that were no longer surpassed in the later periods. The columnar and pilaster orders were mostly set with very small intervals. They were far less employed in Holland than in Belgium, and indeed almost entirely for public buildings, partly for entire facades, partly for the upper story alone, in the latter case being sometimes set on projecting consoles. But they never succeeded in a satisfactory combination with the national forms. Characteristic of the Holland Renaissance is the combination of bricks with cut stone, and the strong color effect produced by the alternation of the materials. Projecting blind arches consisting of brick and cut stone voussoirs, over rectangular windows, horizontal continuous belts and ashlar with bosses set at the angles and vertical edges, wrought iron anchors as ornaments, and in the general appearance a picturesque and unsymmetrical grouping with a harmonious equilibrium of the architectural masses, animated outlines by means of the high stepped gable and fanciful forms of towers (consisting of superposed diminished low stories with galleries, open aisles and oggee domes are the chief characteristics of the style.

Of the more important architectural works, the city hall in the Hague (after 1564) yet recalls the Italian Renaissance in its subdivision. The developed Holland style is exhibited by the city hall at Franeker (1591). But it is most strongly expressed on the abattoir at Harlem (1602-1603; Figs. 327, 328) by Lieven de Key (died 1627), which like the former, entirely rejects pilasters, columns and cornices in the sense of the classical treatment. On the city hall at Leyden erected at the same time (1597-1604), which is likewise ascribed to Lieven de Key, the imposing middle building with the flight of steps in front, pilasters, columns, hermes and cornices has a form treatment allied to the Renaissance. But the general appearance is entirely Dutch. In the further development the influences of classical art make themselves apparent in increasing measure. The pretty city hall at Bolsward, built in

1614-1616, shows in the upper story projecting columns on consoles and carefully designed cornices. (Fig. 329). The shafts of the columns are crossed by intermediate belts, so that the face of the wall seems held together. The leading masters of the late Holland Renaissance is Hendrick de Keyzer (1567-1621). Among his works the Protestant churches merit consideration, which he erected in the recently established parts of the rapidly growing capital, Amsterdam. The Zuider church was built 1603-1611 and has the ground form of a three aisled rectangular hall building with pulpit at the middle column. The elevated middle aisle is covered by a tunnel vault with transverse arches, and the side aisles by cross vaults. At one angle is built a square tower (Fig. 330). The Wester church (1620-1638) has the same transverse design; but the tower projects on the longitudinal axis. The structure follows the basilican scheme (with clearstory). Here the two extreme intersection are extended as transepts to the height of the middle aisle, while the Zuider church merely has two transepts indicated by the height of the side aisles. The two external longer sides were very effectively treated thereby. The architect wished also by this to emphasize the transverse axis on the exterior, also accented in the interior. The Noorder church (1620-1623) has the ground form of a Greek cross with low triangular additions. (Fig. 331). The four free piers support a central cross vault; the cross arms have tunnel vaults. The pulpit stands at one pier of the crossing. The seats are arranged concentric with it, so that the diagonal becomes the main axis. Thereby Keyzer neutralized in a bold way the disadvantages of the cross plan of a church for preaching. All these churches lack galleries. Their architecture like that of the secular buildings of the master (East India Court in Amsterdam and Mint at Enkhuyzen) a dry and severe character, developed merely with intelligence. But yet his school found in Holland animated approval and wide extension, entirely dominating the architecture of the later Dutch Renaissance. About the middle of the 17th century was introduced a new period of development.

More than for its artistic and esthetic side the Netherland-

Netherlandish architecture of the Renaissance must be esteemed for its great historical importance. As we shall see later, it exerted a determining and permanent influence, not only on the architecture of the adjacent countries, but also on that of the German coast provinces as far as to the Slavic East.

2. Germany, Austria and Switzerland.

A. Historical Basis, Evolution and Style.

In the period of the Renaissance (after the imperial diet at Cologne in 1512), Germany consisted of ten circles, including Austria with the exception of the Bohemian provinces, H Hungary and the southern Netherlands, thus of small territories, internally capriciously governed and externally weak, under the supremacy of the emperor. Under Charles V, the heir of the German-Hapsburg and Spanish-Italian countries, Germany formed a portion of the Hapsburg world empire, and as such was developed in its interests. Charles' reign (1519-1556) was not fortunate for Germany. He chiefly resided in Spain (page 241), leaving Germany to the imperial government and to his brother Ferdinand, reigning after 1526 as king of Bohemia and Hungary, (the later Roman-German emperor). While he waged long wars with France for the possession of Italy, there occurred in Germany violent religious wars by the reformation, and in connection with these the bloody peasants' war broke out. The former resulted in the division of the empire, which restricted a peaceful internal development. First after the religious peace of Augsburg (1555) began an improvement, and under Ferdinand I (1556-1564) and Maximilian II (1564-1576) the German countries enjoyed a period of continued peace and of high material prosperity, which certainly was lessened by political divisions and bitter religious strife, not only between Catholics and Protestants, but also among the Protestants themselves. Under Rudolph II (1576-1612) set in the counterreformation, aiming on the one hand at an internal strengthening of Catholicism, and on the other to fighting P Protestantism and recovering the provinces conquered by it, and whose supporters were principally the Order of the Society of Jesus. From the opposition of the Protestants to the

suppression of their confession by the Bohemian king Ferdinand (later emperor Ferdinand II), favorably inclined toward the counterreformation, originated the thirty years' war (1618-1648), fatal to Germany in the highest degree, by the destructive conduct of which, the German countries were completely devastated and exhausted, the population reduced to a fourth, and the ordinary and intellectual civilization was destroyed. On the development of art was exerted a determining influence by these political conditions, deeply injuring the life of the people and the mind.

In the eighth decade of the 15 th century the influence of the Italian Renaissance in Germany becomes perceptible and is indeed as elsewhere in the works of the minor arts, in wood engravings, on the backgrounds of paintings, on altars and tombs. Soon afterwards German mechanics, who had gone to Italy in their wanderings, and Italian architects and stonecutters, who sought employment on this side of the Alps, transferred the forms acquired in the south to the northern buildings. In the first quarter of the 16 th century already originated certain works, in which the Renaissance motives maintained their predominance over late Gothic forms. After 1530 the Renaissance increased its extend north of the Alps, beyond the Thuringian forest and the Erz mountains. It exhibits from the beginning onward a mixed variation and a certain inclination to Barocco forms. The Gothic reminiscences continued until in the beginning of the 17 th century. *

** On the Peller house at Nuremberg (1605), whose facade entirely belongs to the late Renaissance and already shows Barocco tendencies, the entrance and the rooms in the ground story are still furnished with splendid late Gothic vaults, and the parapets of the court facades have tracery.*

In the general view of German Renaissance architecture appears an expressed contrast between the southern and middle, and the northern German provinces. On the one hand it is based on the diversity of the character of the people, on the other on the inequality of the acceptance and influence of Italian art. In the south, where men were particularly receptive of new ideas by the commercial relations with Venice,

Burgundy and Spain by the great mercantile associations, the new form world found entrance directly from Italy, and even it it lost much of its purity, yet it substantially formed the determinant of the artistic expression. The portal represented in Fig. 332 seems like a direct transplanting of forms from upper Italy to Austrian soil. But the north received its impulses only exceptionally from Italian masters. Almost entirely they came in an already weakened form and with a stamp already in the sense of the northern conception, and indeed only for the smaller part from middle and southern Germany, but instead in a broad stream from the Netherlands. In both cases it was met as something complete, that required no further transformation. Therefore to the north was lacking the period of growth, the early Renaissance, which in southern and middle Germany took a development similar to that in France and the Netherlands. The early Renaissance of the north must be sought in the Netherlands.

There were some important native masters, among whom first of all were the painter Hans Burgkmair in Augsburg, the two Holbeins in Augsburg and Basle, and the bronze sculptor Peter Vischer in Nuremberg, who appeared as the path-breakers of the Renaissance and therefore exerted a deep influence. Their endeavors were aided partly by the imperial court, partly by princes of certain smaller states, which in their independence sought to equal and indeed to surpass the splendor of the imperial court. Thus developed certain centres for Renaissance art, of which the courts of the humane emperor Maximilian, well inclined toward the arts and sciences, and the Palatine and Bavarian princely house of Wittelsbacher are to be mentioned in the first rank. But in general the princes had too much to do with the religious and political tumults of the time, to be able to adopt and realize grand architectural ideas. The mightiest impulse to activity in art lay in the citizen class. There indeed reacted the conservative sense more strongly, as it had developed in the city commonwealth and in the guilds. However the citizen class already from the beginning took part in the movement. The Fugger family in Augsburg, for example, was scarcely inferior to the cl-

of the historical evidence in the case of the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

...the first of the two is the... the second is the... the third is the...

class of territorial princes in the encouragement of art.

Until the middle of the 16th century the Renaissance in southern and middle Germany permits the recognition of a progressive adoption of the new form elements, whereby a peculiar change to a purer development became apparent to but a limited extent. About 1550 it passed into the stage of its maturity. Already a decade later on certain buildings becomes perceptible the beginning of a further development; about from 1580 onward this appears generally. It is expressed in an energetic striving for severer proportions in the composition and the facades, and for a purer treatment of the members. The influence of the Italian Renaissance comes into force in increased measure. Some important northern masters, to whom the Renaissance forms offered nothing new, and who were capable of deeper conceptions, went to Italy; there the works of the great Palladio made a deep impression on them. Thereby the classicistic endeavors in the sense of the Palladian school also became effective in German architecture. Since the Italian art about this time passed into Barocco, it was unavoidable, that also the German now received a strong Barocco impulse. The heightening of the effect, for which men strove in Italy with full clearness of aim by elevation of the monumental expression, was sought in Germany in attainment by other means, particularly by the enrichment and overloading the decoration (Fig. 333), the accenting of details, the heaping up of sculptured and ornamental decorations, the frequent use of the cartouche and the transformation of the ornamental motives into the gristle style. Indeed a laboring for grand monumental effect in Germany cannot be denied; on not a few works was this also attained. But the general character of the period is not determined by them. The lofty flight in architectural ideas and the harmonious perfection with a conscious aim in the sense of the Barocco idea was not allotted to this epoch of German art. It rather maintained on this stage its entire nature according to the character of the Renaissance.

Thus we have to distinguish three epochs in the architecture of southern and middle Germany, the early Renaissance of

about 1800, the first appearance of the Renaissance in Italy, from 1400 to the end of the 15th century, was.

In North Germany the first influences of the Renaissance in the 16th century appear in the works of the 15th century. They come from the Roman provinces and show themselves in the architecture on the walls of the houses of the nobles, in the division of the houses of the nobles, in the division of the houses of the nobles, in the division of the houses of the nobles.

The architecture of the Renaissance in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

In the 16th century the architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

The architecture of the houses of the nobles in North Germany is the same as in the other parts of the country. It is also the same in the architecture of the houses of the nobles, in the architecture of the houses of the nobles, in the architecture of the houses of the nobles.

about 1500-1550, the high Renaissance of 1550-1580, and the late Renaissance from 1580 to the end of the 30 years' war. (1648).

In north Germany the first influences of the Renaissance make themselves apparent about the middle of the 16 th century. They come from the Saxon provinces and show themselves almost entirely on the shells with spheres added over the steps of the gables, in the division of gables by pilasters, and on the tasteless projecting cornices. After 1550 began the victorious march of Netherlandish art over all Germany from the Weser to the Danube. By the active commerce between the Hansa cities and the Netherlands, that also related to artistic products, the soil was already prepared. It is also proved that Netherlandish artists extended their activity far to the east. In certain coast cities, particularly in Danzig, Netherlandish art found direct and unchanged acceptance. During the entire second half of the 16 th century the north then developed an extremely strong activity, which continued even into the 17 th until late in the 30 years' war. It flourished in the external and also especially in the internal architecture in much greater richness than in south Germany, but was already from the beginning strongly inclined to Barocco forms, which with the beginning of the 17 th century took the upper hand, so that they gave to the succeeding northern architecture an almost Barocco character; certainly this was not, or only exceptionally expressed in grand Barocco compositions, but rather in the style and richness of the decoration.

Thus the Renaissance in north Germany had only two periods of development to be mentioned, the high Renaissance of about 1550-1600 and the late Renaissance of 1600 to about 1650.

In the style of the German Renaissance the characteristics mentioned on page 269 become most prominent; in the early period the restrained and purely external employment of the antique subdivisions (Fig. 308), and also in the developed Renaissance the long continued (until in the 17 th century) mixture of styles (Figs. 334, 335), and further the permanent difference between the Italian and the northern art conceptions, the lack of grand treatment of interiors, the picturesque

grouping of the architectural masses, the accenting of definite parts of the building, the steep roofs with the high stepped gables, or those bordered by capricious curved forms (Figs. 335, 356), the free treatment of columns, pilasters and cornices, the preference for candelabra supports and hermes, the rich ornamental, indeed both sculptured as well as painted decoration. Likewise the internal decoration and the ornament have already been fully described. For the works concerned, stone construction was intended, so far as relating to the facade architecture. But in German wooden construction also found zealous employment. In it the old traditions continued more strongly. Yet also this derived abundant gain from the treasure of forms of the Renaissance. Two systems of construction in it may be distinguished, the log and the half timber construction.

Log construction is the method of building in mountain regions, particularly in the Alps, their offshoots and in the Bohemian forests. In it the walls are built of trunks of trees or hewn timbers laid on each other. (Fig. 336). The connection with the adjacent walls results by dovetails and projections, so that a very strong connection is produced. The most extensive use was found by log construction, as well as wooden construction generally, on the houses. The ground story of the Alpine houses is chiefly of stone, the upper being of wood with widely projecting galleries. In the front are the living rooms, in the rear being placed the stable and the sheds. The whole is covered by a low and strongly projecting roof, covered by wooden shingles and often loaded with blocks of stone. Also over the doors and windows small caps were frequently placed as a protection from injury by the weather. Ornament is but sparsely employed on the portals, window enclosures, galleries and the carvings on the external planks. The Black Forest house does not essentially differ from the Alpine house in plan and treatment. It has on a low stone ground story a living story sheathed with boards, over this being a widely projecting and partly hipped roof covered with straw. (Fig. 337). The attic is used as a shed. To permit driving into the attic, the house has its rear against a hill

on an inclined driveway. Decorative ornaments in the very near-
 forest have a very picturesque effect by the way of the
 by the projections of the roof, the gables and eaves. By
 the way of the wood above the railing white plastered
 structures in the forest green of the romantic landscape, in
 with which by the suitability of the construction, it seems
 as if they have grown up. (Fig. 257). *

As has been mentioned the architectural style of the landscape
 nature with the half timber construction of the buildings,
 their construction and mode of decoration are substantially
 determined by those of the Renaissance. The existing build-
 ings also belong to an earlier time.

With regard to work construction the walls with eaves, the
 on eaves and are the most interesting feature. The eaves are
 supported by horizontal beams or by inclined rafters (beams
 on eaves). The remaining beams being fixed with brickwork or
 also with stone mixed with clay and wrapped around stones. In
 the eaves part the beams, whose other ends rest on the
 ground have the lower face and part the side of the upper
 story. Hence originated the construction of the eaves, which
 showed essential advantages, while it increased the height
 of the front walls in houses situated in wooded
 areas of the interior and gave to the facade a romantic char-
 acter between stories eaves deep as towers, on the eaves and
 and by said eaves in stone construction, resulting in a
 general motives of the eaves. On the eaves and
 eaves, eaves, the corner and even the ridge eaves, on the
 window openings and eaves eaves eaves eaves eaves eaves eaves
 eaves the eaves eaves of eaves in eaves in eaves in eaves in
 eaves wooden eaves eaves to the eaves, eaves the eaves
 eaves of the eaves. (Fig. 258). The eaves in eaves
 of eaves construction often projected above the roof in eaves
 in eaves. The eaves eaves construction is eaves eaves
 eaves eaves. The eaves are eaves eaves eaves eaves eaves
 eaves eaves over eaves. The eaves are eaves eaves eaves
 eaves a eaves construction. (Fig. 259). The eaves

or an inclined driveway. Decorative ornament is but very sparingly applied. These dwellings in the Alps and the Black Forest have a very picturesque effect by the deep shadows cast by the projections of the roof, the galleries and caps, by the warm tone of the wood above the dazzling white plastered substructure in the fresh green of the mountain landscape, with which by the suitability of the construction, it appears to have grown up. (Fig. 337). *

** We have mentioned the architectural style of the mountain regions with the half timber construction of the Renaissance, since its construction and mode of decoration are substantially determined by those of the Renaissance. The existing buildings also seldom date from an earlier time.*

Half timber work constructs the walls with posts, that stand on sills and are tenoned into plates above. The posts are stiffened by horizontal girts or by inclined timbers (braces or ties), the remaining panels being filled with brickwork or also with straw mixed with clay and wrapped around sticks. On the plates rest the beams, whose ornamented ends generally project beyond the lower face and bear the sill of the upper story. Hence originated the corbelling of the stories, which afforded statical advantages, while it prevented the bending outward of the front walls; it likewise permitted increased use of the interior and gave to the facades a suitable division between stories casting deep shadows, at the places accentuated by bold cornices in stone construction, recalling architectural motives by the corbel cornice. On the beam ends and plates, portals, the corner and even the middle posts, on the window parapets and enclosures found extensive employment, partly the antique treasure of motives in very tastefully changed wooden forms suited to the material, partly the ornamental riches of the time. (Fig. 338). The gable in imitation of stone construction often projected above the roof in curved forms. The north German wooden construction is quite regularly executed. The posts are mostly uniformly spaced and are set vertically over each other. The timbers and panels have a rich decorative ornamentation. (Fig. 338). It is less severe in south Germany. The posts are very freely spaced a

and the beam ends are often concealed by wooden cornices. The wooden have less projection. The entire decoration is limited to the curving and crossing of ties, which are frequently arranged in the form of flat patterns. As a rule only the corner posts and the enclosures of doors and windows are ornamented. At some time these half timber structures, that reached a high development in Swabia, in their simplicity often have an effect, grand in a certain sense and frequently even monumental. *

** Half timber construction was already treated artistically in the middle ages and even in the Germanic early period. In Germany it attained in the time of the Renaissance its richest development. The Barocco, which worked so much with imitative materials, allowed it to disappear under the coating of plastering.*

In regard to the architectural works, what we have said on pages 217 to 282 on the chateaus and other secular architecture, as well as on the Catholic and Protestant church architecture, applies to German architecture in its entire extent. Likewise in the German Renaissance, chateau architecture stands in the foreground. But since in chateau as well as in church architecture native masters alternated with Italian, and the latter not infrequently predominate, the specific German and the peculiarities of a definite architectural domain less plainly appear. The city and private buildings express far more than the chateaus the character of the country. *

B. The Most Important Monuments.

** The consideration of the monuments of the German Renaissance we cannot carry out in the previously employed sequence of the periods of development, because the Renaissance occurs irregularly in the German countries, proceeds from different points, and the unified development of the style also lacks like architectural periods and regions. By an arrangement according to the species of the buildings, so that we may successively describe the chateaus, churches, public buildings, private structures etc., the general view of the architectural activity in the different countries according to their kinds and importance, which we have to emphasize, would be ent-*

entirely lost. Therefore we shall consider the monuments according to the separate architectural regions, thereby retaining in general the sequence, which is given by the general course of development of the Renaissance in Germany and by the predominance of the principal tendencies.

In the adoption of Renaissance forms south Germany precedes. The rich commercial city of Augsburg stands in the first place. By its animated traffic with Venice, the earliest influences came from Venetian art. Some important masters had prepared the soil. There worked Hans Burgkmair, very gifted in forms (1473-1531), who exhibited in his paintings the realism in the free conception of nature characteristic of the period of the Renaissance, was indeed doubtless in Italy before 1500, and introduced the new forms in his paintings and drawings for woodcuts. He can pass for the first German master, who aided the transition to the new style. Beside him worked in the same sense the intellectually allied elder Holbein (about 1460-1524). About 1511 originated the first architectural work of the Renaissance in Germany, the Fugger chapel near S. Anna in Augsburg. It is kept in pure Venetian early Renaissance, aside from the net vaults covering it, and it is assumed to have been erected by a master Hieronymus, trained in Italy and practically employed in Venice. Thenceforth Augsburg was the earliest centre and starting point of the Renaissance in Germany. Its extension first occurred chiefly in works of the minor arts, indeed principally on altars and tombs.

From Augsburg Hans Holbein the Younger (1497-1543), the son of the one just mentioned, went to Basle already in the 18th year of his life, three years later to Lucerne, and probably from there to Upper Italy. At least it is to be assumed with some certainty, that he visited Como and Milan. After his return, he was a zealous representative of the Renaissance, whose spirit he fully understood. But he treated it with entire freedom and gave it an entirely German character in regard to ornamentation. Likewise in this as in his numerous designs for façades, decorations and the art industries, the great painter showed himself a talented master in treatment of form,

to which German art can scarcely show a second. The Renaissance also took its further way from Basle, yet for the next time by the mediation of the minor arts.

First in the thirties originated the earliest larger architectural works of importance. In that time the Bavarian dukes commenced their extensive architectural activity. From 1536-1543 the royal palace at Landshut was erected by German and Italian masters. The wing toward the Altstadt was by the German masters Nicolaus Ueberreiter and Bernhard Zwitzel, and it was kept in the early German Renaissance. Likewise the portico-like vestibule with the marble columns belongs to this style. The three other wings enclose an arcaded court with Doric columns and were built under the lead of a master A Antonelli from Mantua, a representative of the school of Sanmicheli. Not merely the court but also the rooms are very impressive, and would merit consideration, even in Verona. The mediaeval castle of Trausnitz near Landsberg received about 1550 the so-called Italian building with simply treated pier arcades of wide span in the two upper stories of the court side. The magnificent interior decoration of the principal story consists of paintings of grotesques (Fig. 339), panelings and forms of ceilings in an expressed Italian character. But their execution followed later, mostly between 1576 and 1580.

Comparatively early Nuremberg took part in the new movement. There the house architecture of the citizen class reached greater and truly popular development. The plan of the house follows the type generally common in south Germany (page 279); they have small width of facade, but imposing height and are very deep. Splendidly ornamented bay windows and stately gables form the chief parts of the very simply treated facades. The courts are enclosed by arcades, on which Renaissance and mediaeval motives are combined in a charming and harmonious manner. On the Cloth Hall mediaeval and Renaissance motives are balanced; the windows recall the French early Renaissance.

300 The Hirschvogel house of the same time is famous for its magnificent garden hall, designed in 1534 by Peter Flötner already in mature and noble Renaissance forms. The exterior has

a very pleasing subdivision into stories and a bold crowning cornice; the design appears to have been preceded by studies in upper Italy. On the much later four story Topler house (1590-1597), the keynote is still given by the mediaeval forms on bay windows, on the window forms and the gable. (Fig. 340). The Renaissance obtained a complete victory on the very famous facade of the Peller house (1605), but both in the details as well as in the general effect, Barocco ideas already notably appear. (Fig. 341; also page 290). On the city hall, begun 11 years later, all reminiscences of the middle ages have disappeared. The elongated facade (Fig. 342) rejected columns and pilasters, but obtained a great effect of the powerful treatment of the portals and the window enclosures. The arcades in the two upper stories of the court have a subdivision by pilasters. The master, Jacob Wolff the Younger, had made studies in Italy, probably in Genoa.

A similar and purely citizens' art tendency, even if in smaller proportions, is found in the neighboring Rothenburg-o-T. There the marketplace with the stately city hall affords an entirely charming view of an old German city. The city hall was built in 1572 by a nuremberg master, the elder Jacob Wolff, father of the one previously mentioned. The long facade is broken by an octagonal stairway tower and before it is placed a rusticated arcade portico with a balcony. The isolated angle is accented by a high tower. Alike bay window. The architecture of the portico and of the portal in the gable end exhibits a certainty in handling Renaissance forms, scarcely found at that time in German masters.

In Munich about the end of the 16th century, Friedrich Susstris and Peter Candid were engaged, who had been trained in Vasari's school and represented the Italian Renaissance in the Netherlandish conception. They proved themselves important artists, who dominated the forms with sovereign mastery, and powerfully influenced their contemporaries. Their first important work is the church of S. Michael (1583-1597), a plan with a single aisle (Fig. 343) with transverse aisle and a long choir ending in polygonal shape, with three relatively small side chapels terminating in semicircular form, above the

them being galleries, without a dome, but with a very happy introduction of the light. The walls have double pilasters and a high attic; the tunnel vault is treated as a coffered stucco ceiling. The whole is nobly handled in the proportions and moderately decorated, and in its general effect is a grand internal creation. The design was by Sustris, although this cannot be proved without objections. Peter Candid passes for the architect of the impressive wings enclosing the Kaiser court of the royal palace, erected in 1611-1619 for Maximilian I. The exterior is plainly treated; the beautiful and rich portals of the year 1614 (Fig. 344) on the otherwise undivided western facade permit the recognition of a strong influence of the Italian Renaissance. In the interior the stairway design and the rooms of the principal story, by the grand and harmonious proportions and the noble treatment of the details, have a distinguished effect and a select and a truly princely magnificence. The Renaissance perhaps has in Germany no second work of equally perfect treatment to be mentioned.

Meantime Augsburg had entered into the times of the high and late periods. In the year 1570 Jacob Fugger had called the Venetian Antonio Ponzano with other Italians to Augsburg and had a series of rooms in his palace decorated entirely in Italian style. * But the greatest work of Augsburg architecture was completed in the late period by a native master Elias Holl (1573-1646), the important city architect. Already in the 17th year of his life, he came to Italy in his wander years, and a few years later he built in his native city the arsenal, that with its three story, richly treated facade crowned by a gable, already exhibits a complete mastery and shows an entirely free creation with a visible influence of Palladian art. His chief work, the city hall (1614-1620) has a severely symmetrical plan. In the ground story a central three aisled hall extending the entire length of the building has about a third part of its width. From it on the transverse axis to the right and left, stairways lead in two branches to the upper story, and indeed to the "Golden Hall" extending through three stories and located over the lower hall. In

the angles lie the "princes' chambers". The treatment is extremely magnificent and stately. Holl gave to his native city a grand appearance. Even his city gates exhibit a noble treatment, splendidly appropriate to their purpose.

** The same master was also later (about 1586) employed on the Antiquarium at Munich and the grotto portico of the royal palace.*

In Swabia is to be mentioned a very early monument of the transition from Gothic to Renaissance, the octagonal spire of S. Kilrain at Heilbronn, erected in 1513-1529 by Hans Schweiner of Weinsburg. (Fig. 345). From 1579 to 1582 the old Gothic city hall there was rebuilt. Its longer side is turned toward the marketplace, and has a high flight of steps treated as an arched portico, and a grouped dormer gable above the main cornice at the middle. (Fig. 323). To the early Renaissance also belong further extensive new buildings added after 1537 to the castle at Tübingen, whose principal wing contains a great hall extended by a large balcony structure. The pompous and already strongly Barocco front portal building dates from the beginning of the 15th century. In Stuttgart the old chateau was erected after 1553, leaving an older wing of the building. As architect is mentioned Aberlin Tretsch. On the exterior by the earnest and undivided architectural masses and the strong round towers it still bears the character of a castle. The court of the chateau is surrounded by three story ~~arched~~ porticos, whose segmental arches are supported by very freely treated columns. (Fig. 321). Particular interest for the history of architecture is presented by the plan of the chapel as a narrow rectangular hall, which is extended on one of the two longer sides by a polygonal bay niche. (Page 281 and Fig. 324). This chapel is the earliest church building on German soil, whose plan is exclusively designed for the requirements of Protestant divine service. **A masterpiece of a rare kind, that strikingly indicates the increasing enjoyment of a more cheerful course of life in the age of the Renaissance, was the summer house (lusthaus) erected for duke Louis in 1575-1590 by his architect George Beer near the chateau, and which unfortunately was torn down in 1846. It had*

a rectangular plan, an open arcade portico extending around it externally, interrupted at the angles by small and elegant round towers, and at the middle of the main facade by a high flight of steps, above which was a portico-like projection crowned by a gable (Fig. 346), and stately gables on the side facades. The ground story contained a great promenade hall leading around great water basins, above it being a similar festal hall. For the works on the summer house under Beer, Heinrich Schickhardt (1558-1634) had also participated, who afterwards exerted a great activity in Wurtemberg as ducal court architect. He in Italy had measured and drawn buildings by Palladio and Genoese palaces. It was allotted to him to not only build anew chateaus, churches, schools and the like, but also entire cities. (To him are attributed 12 chateaus, 17 churches and a great number of public and private buildings). He designed the plan of Freudenstadt in Swabia for the Protestants expelled from Austria, and erected there the church (1601-1608) according to a very original ground plan, when he arranged two wings of the building adjoining at a right angle, one of which was assigned to the men and the other to the women. His chief work was the magnificent Neue Bau (new building) in Stuttgart, later destroyed by fire.

** The chapel of the chateau of Torgau dedicated by Luther in 1544 is indeed of earlier date, but in its ground plan as a rectangular hall with galleries placed around it and between the buttresses of the vaulting, was based on the external conditions of the building of the chateau.*

Of the half timber construction, which rose to high perfection in Swabia, nearly every city possesses splendid examples.

Among the monuments on the upper Rhine is the chancery building at Constance (1592), worthy of consideration for its picturesque court furnished with arched porticos of wide span between round towers. In Basle the pleasing facade of the goldsmiths' guild hall (Geltenzunft) (1578) arranged in three orders suggests the study of the writings of Serlio. (Fig. 347). On the somewhat later Spieshof (1600) is employed the triple window motive of Palladio. Italian influences also appear on the city hall at Mülhausen-i-E, well known for its

fresco paintings in which the painter (Christian Vacksterffen from Colmar) in the year 1552 imitated rusticated ashlar work in the lower story and an architecture of columns and niches in the upper one. In Strasburg Daniel Specklin (1536-1589), a much traveled fortification architect, designed about 1585 the facade of the old city hall as an entirely regular plan with pilaster subdivision in the stories graduated in height. The portal and pilaster architecture approximates the Italian form treatment; the general appearance, particularly the treatment of the windows and the roof, bears the architectural character of southwest Germany. The Frauen (women's) house erected on the Münster place in 1581 belongs to the most notable half timber works in southern Germany. The internal treatment of certain rooms (Fig. 348) allows the recognition of the predominance of an architectural spirit with the aim of a grand and comprehensive use of the architectural members in favor of a unified effect. The chateau at Baden, begun in 1569 by Caspar Weinbart, is noteworthy, in that in the arrangement of the ground plan care is already thoroughly taken for convenience, when the rooms are connected with a corridor extending through the middle of the building. On the somewhat later chateau Gottesau near Karlsruhe (1588-1594) with round towers covered by domes, built by a Strasburg master, Paul Maurer, French influences made themselves felt by the mediation of the margrave Ernst Friedrich. (Fig. 349). In Heidelberg the house zum Ritter (of the knight), built in 1592 by Charles Belier, merits consideration on account of its rich facade, characterized by colonnades and two bay windows. The principal work of south German, and of the German Renaissance in general, is the grand chateau romantically enthroned above the city. It consists of several buildings grouped around an irregular court approximating a square in its general form, and that date from different times. The towers on the hillside, certain lines of walls and parts of the structures still belong to the 15th century. The earliest building dating from the Renaissance period is the "Glass Hall Building", erected about 1550 by Jacob Heider. Of the former facade only about a half with the loggias extending through three stories

now remains; but even this small portion is an extremely picturesque part of the interesting court of the chateau. In the years 1558-1563 was erected the Otto-Heinrich building, adjoining at a right angle. The famous facade is built in three stories above a high base. It has a well considered subdivision by Ionic rusticated pilasters in the lower story (above which is a Doric triglyph frieze), Corinthian pilasters in the second and Corinthian columns in the third story. (Fig. 350). The influence of the Italian Renaissance cannot be denied, and particularly of the writings of Serlio. Yet the composition is entirely independent and entirely of German character. The master is not to be named with certainty. It is assumed that the design was by an otherwise unknown artist, the Netherlandish sculptor Anthony. Another Netherlandish master, Alexander Colins, took part in the execution, who is to be regarded as a successor of Anthony. From 1601-1607 beside the hall building was erected the imposing and very monumental Friedrich building by the Strasburg master Hans Schoch. For the facades (Fig. 351) the master adopted the system of the Otto Heinrich building, yet developed them with a freer and substantially maturer treatment of form. With the energetic accenting of the structural framework, luxuriant rolled work and cartouche ornament, as well as the rich figure decoration designed by Sebastian Götz from Chur, is combined into a harmonious whole of rare worth. We have in the two facades of the Friedrich building an extremely interesting and powerful expression of the German art spirit.

In German Switzerland the close relations with Italy were also effective in architecture. But the German conception gives the keynote in the plan and the treatment of the facade as well as in the stone construction. In Lucerne Giovanni L. Linzo erected after 1557 the Ritter's palace (now government building) with beautiful portico court. The city hall there was begun in 1601 and adheres more closely to northern art. Zurich has some interesting guild houses. Likewise in artistic dwellings meriting consideration, Switzerland has a large number to exhibit. Yet it lacks the larger chateaus. The Stockalper palace in Brieg (upper Wallis) of 1611-1617 consists of two tall and massive structures connected by a loggia

and an arcaded court protected by three defiant square towers, but it can more properly pass as a private house arranged in the grand style.

319 In Austria the prevailing northern art character, by the vicinity of Italy and by the mixture of races already inclined in conception to the southern art feeling in plan and form treatment, experienced a refining, which is particularly to be recognized in the endeavor for clarity and simplicity with dignified and carefully weighed treatment of details. In the southwest provinces and especially in the Tyrol is commonly found the motive of open arcades ("pergolas") derived from the antique, which surround the marketplaces and are frequently continued along both sides of the adjoining streets. In the late Renaissance there, as well as in southern Bavaria, occurs the horizontal termination of the facades instead of the high gable. On the other hand the preference for the bay window, mostly beginning at the ground and extending through all the upper stories, preserves the German character. Among the Tyrolese nobles' seats the restorations and new structures at chateau Ambras (after 1563) take a prominent place, and were erected by the archduke Ferdinand for his wife, Philippine Welser. The facades are adorned by architectural and figure representations, partly in sgraffito and partly painted in fresco. Besides other splendidly treated rooms, the interior contains the great Spanish hall 141.1×32.8 ft. (Fig. 352) with very tasteful architectural enclosures around the windows and the portraits of Tyrolese princes and a rich wooden ceiling. The externally tasteless chateau of Velthurns near Brixen (1577-1586) contains in its prince's apartments internal decorations, particularly door enclosures, wall panelings and wooden ceilings, that belong to the best works of the Renaissance. In Salzburg the bishop's palace was begun in 1592 and was built in an expressed Italian style, and likewise the cathedral (1614-1634), in which Santino Solari from Como, a pupil of Scamozzi, employed the ground form of S. Peter's in a free manner. The capital of the Steiermark, Graz, has in the Country house (Landhaus) a noble building of the year 1560 (Fig. 353) kept in the severe forms of the Italian

309 high Renaissance. In the archduchy of Austria between 1530 and 1600 extensive new buildings were erected on the Schallaburg near Mülk with a beautiful arcade court, where each two upper openings correspond to one opening in the lower story. The columns are of marble, and the rich relief accessories of the upper gallery are mostly of terra cotta. There are indeed expressed here influences of the upper Italian style of architecture, as on the arcade court of the chateau of Rosenberg near Eggendorf (after 1593), in which the splendid statues are likewise made of terra cotta. At the court of Ferdinand at Prague already from the thirties of the 16th century, an Italian artist colony was in the service of the monarch. The summer house or Belvedere on the Hradschin was built by Paolo della Stella, and it is a rectangular structure surrounded by an airy arched portico on slender Ionic columns, that recalls the basilica at Vicenza. Scamozzi was also employed in Prague. The stairway of the Hofburg is attributed to him. The noble garden portico of palace Wallenstein (1629), opening by three arches on doubled columns, admits the suggestion of Genoese models. As architect Giovanni Marini is generally named. I might concur in the assumption of Gurlitt, who declares it to be a work of Bartolommeo Bianco (page 234). The mausoleum of archduke Ferdinand II, erected 1614-1622, is a genuine product of the early Italian Barocco style. Into Hungary the Renaissance quite early found entrance under the favor of king Matthias Corvinus (1458-1490), who is to be counted among the greatest admirers of the Italian Renaissance. (To the influence of Hungary seems to be due the early penetration of Renaissance forms into Silesia). Besides the Siebenburg chateau of Kronstadt and some noteworthy chateaus of the nobles, the Renaissance produced important citizens' houses with court arcades in several cities, particularly in Keskmark, Leutschau and S. Georgenburg.

In middle Germany, Saxony and Silesia take precedence. There comparatively early a true architectural school was developed, which received its impulses manifestly from the Lombard Renaissance, especially from that tendency which proceeded from the Certosa near Pavia, and is chiefly characterized in

the rich ornamental work in the pilaster panels, on the archivolts, friezes and arch spandrels, as well as in figure decoration by statues, busts and heads in medallions. The monuments adhere closely in part to the Italian principles of composition; in part they retain the late Gothic basal lines as well as many details (particularly the curtain arches in the windows; page 96), and they employ the Renaissance forms for portals, bay windows and gables. To the latter kind belongs the George building of the palace at Dresden (after 1530), built by Hans Schickentanz, from which still remains the rich George gate (the former portal on the Elbe side). (Fig. 354).*

The main structure of the palace was erected after 1547 by Caspar Voigt of Wierandt. On it were also employed Italian workmen. Of the design of that time is now preserved scarcely more than the impressive court with the stately stairway towers and the open portico in the middle of the north side. With the more important works of the Saxon early Renaissance is counted the eastern wing of castle Hartenfels near Torgau, built by Conrad Krebs in 1533-1535. Before the court facade is placed a flight of steps and a stairway tower, in which a boldly constructed and splendidly treated winding stairway, recalls much of that of the chateau at Blois, and leads to the upper story. (Page 304**). The real showpiece of Saxon-Silesian early Renaissance is the portal building of the Pias-ten chateau at Brieg (Fig. 355), dating from 1552. Italian artists worked on this. But from its entire composition the design is to be ascribed to a German master. That likewise the private architecture in this domain zealously participated in the development of the Renaissance may be seen by the numerous and in great part very beautiful portals, which have remained from the splendid building period of the Saxon and Silesian countries. About 1560 commenced for them also the high Renaissance, and thenceforth they yielded preeminence to western and northern Germany.

* Compare the George gate with the portal of the cathedral at Como represented by Fig. 212.

** See page 304.*

In Franconia After 1554 originated the Plassenburg built by margrave George Friedrich of Brandenburg, a regular plan with

four towers. The so-called "beautiful court" is surrounded by very richly ornamented pier arcades in two stories above an undivided or rusticated story. Schweinfurt has in its city hall, erected in 1570 by Julius Hofmann from Halle, an earnest and well subdivided building, which is worthy to stand beside the best works of its kind. The bishops' cities in general are centres of great activity in art. In Würzburg the powerful and architecture-loving prince bishop Julius Echter of Mespelbrunn had the university built in 1582-1591 by the architect H. Kahl as an impressive design, grouped around a nearly square court, on whose southern side stands the university church. This is a three aisled building with galleries arranged after the style of the chateau chapels. Before the piers are placed three-quarter columns in the well known sequence. Among the Würzburg houses of the Renaissance period, there merits consideration the picturesque Sandhof, that originated about 1616, the residence of the old patrician family of Sandhof (Fig. 356). The grandest work of the Franconian late Renaissance is the chateau at Aschaffenburg, erected by the Strasburg master George Riedinger in 1605-1614 for archbishop Johann Schweikard. It has a symmetrical ground plan, 3. indeed produced under French influences, consisting of four wings enclosing a square court, with four massive square towers at the external angles and four smaller stairway towers at the angles of the court. An older tower was included in the rear wing. The facades have merely a horizontal division by bold cornices. The window enclosures already permit the recognition of strong Barocco tendencies. The building has an imposing monumental effect. In Mentz the south wing of the prince elector's palace, begun in 1627, has a very clear subdivision by three correctly arranged pilaster orders. The decorations on the lower third of the shafts and the other rich ornamental accessories have the character of the German rolled work. The architectural details and particularly the window forms were manifestly influenced by French models. On the lower Rhine, where the country shows so much similarity to the Netherlands in regard to climatic and living conditions, and where also an active commerce with them had commen-

commenced at a very early time, the architecture is in close connection with the Netherlands. We find here as there chiefly narrow houses, mostly with three windows and stepped gables. The magnificent portico of the city hall at Cologne (1569-1571) was indded by a native master, Wilhelm Vernicke (Vernickel), but as its creator himself admits, it was designed not without the influence of the Belgian school. The proud structure is arranged in very noble proportions and is distinguished by columns (Fig. 357); it opens in five arches on the facade and two at the side; it has strikingly pure and entirely Italian early Renaissance forms. The Jesuit church ^{3/3} at Cologne (1618-1622), probably under the influence of the cathedral, is still chiefly arranged in Gothic as a basilica with slender round pillars and galleries. The net vaults rest on graceful corbels. The architectural details have the character of the late Renaissance, the ornament that of the gristle style, of which it presents one of the earliest examples. In Düsseldorf the church of S. Andreas was built in 1622-1629 as a three aisled hall church and richly decorated.

North Germany has an architectural region in the internal northwest provinces (in the country of Münster, Hanover, Brunswick, Halberstadt, Hildesheim and Hameln), in which the citizens' art was very richly developed, both in stone as well as in wooden construction. The impulses come from the Netherlands in relation to the arrangement of the ground plan (page 279) and the architecture; still the structures exhibit a strong individuality. Here belongs the Rat-catcher's house (Rattenfänger) at Hameln with a high and fancifully bordered gable and luxuriant ornamentation, consisting of decorated ashlar, frequently in chessboard patterns. In Münster the buildings on the architecturally very interesting marketplace mostly have galleries. On the best Renaissance work there, The Stadtwein (city wine) house (about 1615), they are omitted. The Krameramts (merchants' office) house adheres closely to the Netherlandish Renaissance. In Hanover the stately Leibnitz house (1652) strives for a severe organism with regular distribution of the axes. The rich bay window rises from the ground and is a show piece of the Renaissance. In Brunswick on the beautiful Cloth (Gewand) house (1590) by Magnus

Klinge and Balzer Kircher, the antique forms with a surprising feeling for rhythmic proportions is applied to the low stories of the mediaeval structure. A choice show piece of this kind is the house in the Hohestrasse at Minden (Fig. 358), distinguished by the richness of its columns. In Paderborn the quite symmetrically arranged city hall (after 1612) has two projections from the main gable end at both angles over open arches with a continuous series of windows in the upper story and ornamental galleries. In Münden the dry and bold facade of the city hall (1605) has a predominating Netherlandish architecture on the three gables set side by side, but otherwise an entirely German character. In Wolfenbüttel Paul Franke (1538-1615), an important and freely creating artist, built the beautiful church of S. Maria (after 1608, first completed in 1660), which exhibits grand proportions as a three aisled hall church of imposing internal effect. The details of the gables arranged beside each other above the side aisles are already given up to a wild gristle style (Fig. 359). His university at Helmstadt (near Brunswick; 1592-1597) is a rectangular building of two high stories, staircase tower, high gables above the narrow facades and three dormer gables over each longer side, in strong composition and rich treatment. Also the City church at Bückeburg (1615), as whose architect is named Adriaen de Vries, contains an imposing three aisled hall interior, covered by cross vaults on Composite columns (Fig. 360), with well weighed and expressive decoration. The facade goes strongly into Barocco and lacks the character of a church.

In the north German lowlands and the coast provinces Bremen occupies a separate position. To the old city hall there Lüd-
 315 der von Bentheim (after 1609) gave a new facade, before which is an arcade portico on Tuscan columns extending the entire width, and a projection rising majestically over its centre, crowned by a stately gable, flanked by two receding dormer gables. The whole exhibits a strong Renaissance architecture with rich sculptured and ornamental decoration, already passing into Barocco. Likewise the interior, particularly the stairs, the corridor in the upper story and the halls are happily composed and splendidly decorated. On the narrow and h

high Essig house, built about 1618, much of the clarity and ornamental effect is lost by the lavish overlaid and rolled ornament dryly and obtrusively spread over all surfaces of the facade. (Fig. 361). The city hall at Emden (1574-1576) in the extreme northwest by Marten Arens of Delft was erected entirely in the Netherlandish style. At Lübeck the Gothic city hall received in 1570 an arched portico with upper story and gable placed before the facade, in the year 1594 on the east side a very rich and nobly treated flight of steps, and in 1586 an already somewhat dryer bay window. The form treatment indeed accepted Netherlandish influences but still retained a certain individuality. From Lübeck spread about the middle of the 16th century a peculiar terra cotta architecture. Portal and window enclosures, horizontal and inclined friezes, figure medallions, also bases, capitals and cornices were made of terra cotta. The predominating style is that of the Netherlandish Early Renaissance. The basis of the ornament is formed by broad, dry acanthus leaves and the trefoil with stem, whose point is cut out in semicircular form. The chief domain of this architecture is Mecklenburg, and the principal building is the "Fürstenhof" (prince's court) at Wismar (1553-1554). The broadly developed facade with the richly enclosed triple windows is subdivided by two high parapet figure friezes and on the court side also by pilasters in the two upper stories. The entire conception, that produces such a quiet monumental effect, as well as the details of the architectural treatment, also especially the portals (Fig. 362), permit the assumption of influences from upper Italy. The great chateau of Güstrow in Mecklenburg, built in 1558-1565 by Franciscus Parr, by its grand plan of pavilions, towers and gables recalls the chateaus of the French Renaissance. In Berlin Caspar Theiss, a pupil of the architect of the chateau of Torgau, built the electoral palace (after 1538), of which but few remains exist. To the city hall at Posen Battista di Quadro in the years 1550-1552 added a noble three-story facade, opening in continuous loggias, to the structure commenced in Gothic. An entire series of important buildings is shown by Danzig. They adhere closely to the Netherlandish

art and chiefly have Netherlandish masters as their originators. The most important monument is the arsenal, designed in 1600 by Anton van Obbergen from Mechlin, and substantially completed in 1604. It is a rectangular two story structure with sandstone construction at the portals, the window enclosures and the capriciously curved gables (Fig. 363). What wealth was at command here is evident, since partial gilding was applied to the cut stones. In the later works also appears the classical tendency of the Netherlandish Renaissance.

Likewise in adjacent Poland the Renaissance had already found entrance to the splendor-loving royal court of the Jagellons at the beginning of the 15th century, and had been favored by the family relations of the princely house with Italy; splendid works were produced, whose execution was almost exclusively under the charge of Italians. The Jagellon chapel at the cathedral of Cracow is perhaps the most magnificent work of the Italian Renaissance north of the Alps.

In Germany the architectural activity also continued during the first half of the thirty years' war until about 1630. Only in the second part of this occurred those miserable conditions, which had an unequalled national weakness and poverty as a result, and the artistic energies of the citizen class, that took the lead in art during the age of the Renaissance, and had developed such varied and luxuriant prosperity, were entirely crippled. After the war a new period in architecture also commenced in Germany, as well as in the other arts; then began the supremacy of the international Barocco style, chiefly supported by the endeavors of absolute princes.

3. Denmark.

After the so-called union of Colmar (1397), Denmark exercised supremacy over the three Scandinavian kingdoms of Denmark, Sweden and Norway, but lost this over Sweden under Christian II (1503-1523), which then entirely freed itself from Denmark. Violent tumults in the interior and unfortunate external complications, especially by means of wars with Sweden, in the 16th century hindered the free and independent development of Denmark. Under the long reign of its brave and energetic king Christian IV (1596-1648) occurred a national advance, w

which was also expressed in art. In the second half of the 17 th century this continued under the favoring influence of the gradually appearing political quiet. But first in the 18 th century (after 1730) a longer period of peace was assigned to the country, in which by the practice of agriculture, commerce and manufactures, it developed into comfort and well-being.

The Renaissance entered Denmark comparatively late. It was at first based chiefly on German influences, but later was in almost entire dependence upon Netherlandish art, which indeed in part directly penetrated, partly by the mediation of the north German coast lands. Under the art-loving king Christian IV, the Renaissance style developed in a manner characterizing the Danish individuality. It adopted the grand lines of the Netherlandish, but worked in its own way. Characteristic for it is an excellent grouping of the architectural masses with a somewhat repressed architectural subdivision and the adoption of early Renaissance motives and decorations. The Danish Renaissance merits our consideration; for in its works it brings out their architectural purpose with particularly clear expression.

The first important work is the chateau of Kronborg near Helsingør (1574-1585), a massive ashlar structure with great undivided wall surfaces, grouped around a square court, with few but relatively large windows divided by mullions, rich and low roof cornices and capriciously curved gables. The form treatment is expressly German, and in any case without direct adherence to Netherlandish models. The most important monument is the chateau of Fredericksborg, erected by Christian IV in 1602-1625. It lies on three islands connected by bridges, the first of which contains the external forecourt with the housekeeping buildings, the second the lower court flanked by two story government structures. On the third island lies the main building composed of three wings, which enclose the court of honor on three sides. (Fig. 364). The court design makes an imposing and harmonious impression by the well weighed proportions, the great tower, the small stairway towers, by the open two story arcade porticos on the rear wing,

and by the harmonious treatment of the whole and the details. The portals and the arcades exhibit a rich and strong architecture. (Fig. 365). Besides the other rooms in the interior, particularly the Ritter hall and the chapel are magnificently handled in the style of the mature northern Renaissance. The creator of the design is unknown. It is assumed that the king himself furnished the basal ideas. In the erection the younger Hans von Steenwinkel and also probably the Netherlander Anton van Obbergen, employed in Danzig, took part. Somewhat later was erected in the same style the considerably smaller but lofty chateau of Rosenborg in Copenhagen (1610-1623). Christian IV directly busied himself with its design. It consists of a rectangular wing with bay windows and gables on the ends, a small polygonal stairway tower, at the sides two slender square towers on the facade (Fig. 366), and a massive principal tower in the middle of the rear side. The interior of the building, for which the king always exhibited a preference, was comfortably equipped, but later was much changed. To the same time belongs the Exchange (Bourse) in Copenhagen (after 1610), erected at the harbor by Hans von Steenwinkel the Younger. It is an elongated two story pavilion with a subdivision of the facade by hermes, impressive portals and gables on the front and an animated outline of the roof, produced by the roof gables set along the main facade and the wonderfully shaped spire of the tower in the form of four dragons' tails twisted together. The interior originally had two long corridors along which were arranged sale booths on both sides. The most mature work of Steenwinkel is the tomb chapel at the cathedral of Roskilde (1617), impressive both externally and internally. To church architecture was directly transferred the style of the chateau architecture. Therefore they mostly appear as slightly developed organic creations; also they make the impression of a rather timid freedom from the Gothic. The chief work of Danish church architecture is the Trinity church, founded in 1637 in Copenhagen by Christian IV. It is an externally heavy but internally earrest and grand hall building with still entirely Gothic ceiling vaults. Over the interior of the church is found a great li-

library hall. The remarkable round tower terminating in a platform was intended for astronomical observations (it includes a comfortable ascending helical ramp, wide enough to drive up a carriage with four horses. * Among the works of the citizens' architecture the first place is taken by the so-called "Byvekes house" in Copenhagen, built in 1616 by the burgo-master Hansen. It is a three story structure with two gables rising beside each other over the longer facade, kept in the Netherlandish style, yet not without reminiscences of German art, particularly of the arsenal in Danzig.

* To the monuments of Danish church architecture, strictly speaking, also belongs the Trinity church at Kristianstad. (Page 324; Fig. 369).

Soon after the middle of the 17th century followed the transition of the Danish Renaissance to the Barocco style.

In Norway, that remained united to Denmark until the year 1814, and this time was dependent on Denmark in language and literature as well as in art. The primary conditions were wanting for a further spread of the massive construction chiefly coming in consideration for the Renaissance. As a natural stone, chiefly granite difficult to work was at command; the making of bricks was limited to the smaller region of the south. Consequently Norway scarcely advanced beyond the ancient native wooden architecture, that grew up with the people on the soil. Indeed the Renaissance also there influenced the structural framework and the ornamental details. But important monuments cannot be indicated.

221 4. Sweden.

With the declaration of its independence from Denmark and the restoration of the national by Gustavus Vasa (1523), Sweden entered on an unexpected advance, which brought to it a very important position among European nations, and the importance of a northern great power by the participation of Gustavus Adolphus (1611-1632) in the thirty years' war. The Vasa period -- Gustavus Vasa and his immediate successors Eric XIV (1560-1568) and Johann II (died 1592) showed themselves to be zealous patrons of art -- so magnificent for the political development of the kingdom, was especially favorable for the flourishing of architecture, and thereby for the entrance of

The Renaissance, in its broadest sense, is a movement of the human mind, which began in the 14th century and continued until the 17th century. It was a period of great intellectual and artistic achievement, and it was a period of great social and political change. The Renaissance was a time when the human mind was freed from the constraints of the Middle Ages, and it was a time when the human mind was able to look at the world in a new way. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be. The Renaissance was a time when the human mind was able to see the world as it is, and it was a time when the human mind was able to see the world as it should be.

the Renaissance. In its course may be distinguished two divisions, the early period till 1600 and the late period until 1650. The former corresponds in the history of development to the early Renaissance, the latter to the high Renaissance.*

** The Swedish late Renaissance falls in the period of the Barocco and Rococo styles. We shal therefore treat it in the succeeding chapter. (Volume 3).*

The formation of the style was thus substantially completed as in the other German countries. At least on the more important monuments, architecture was chiefly practiced by foreigners, indeed by Netherlanders and Germans; therefore is determinative sometimes the Netherlandish, and sometimes the German influence. In general the Swedish Renaissance adheres more closely to the German than the Danish. In the early Vasa period (1523-1600) the mediaeval mode of thought still predominated. On the few churches Gothic forms were still employed in details. The great chateaus of the royal family and of the high nobility were mostly composed of several wings, that were grouped around an open court with round or square towers at the angles. Until the end of the 16th century the exterior was enclosed like a fortress; the wall surfaces remained undivided and the chief weight was laid on solid bonding. The design of the windows was still irregular. In the arrangement of the rooms and stairways little attention was paid to convenience. The Renaissance was chiefly employed on details, on the portals, gables and on the decoration. The country seats of the nobility in the 16th century were principally structural groups like great farmsteads and enclosed by palisades or hedges. If they were treated as permanent dwellings, they mostly had a modest extent in the form of high rectangular stone structures without external subdivision. Only the portals and gables sometimes received an architectural treatment. The citizens' dwellings in the cities were narrow houses with three or four windows in front, simple portals and stepped or curved gables in the style of the Netherlandish-German Renaissance. In the decorative motives was preferred the German so-called Aldegrevor ornament with the long-stemmed trefoil leaves. (Page 276). The later Vasa period (1600-1650) brings a decided endeavor for regularity of the plan of the building

and an appropriate and convenient arrangement of rooms. On the other hand the care in the treatment of details is diminished. The details ever more fall into a certain dryness and tastelessness, probably partly due to overproduction. Likewise in this period the chief attention is devoted to the portals and gables. About the end of the 17th century became perceptible numerous Barocco tendencies in the general design as well as in the architecture and decoration, besides classicistic attempts in the sense of the Netherlandish conceptions. The latter attained full supremacy first in the second half of this century.

Among the monuments of the early Vasa period, the chateau of Gripsholm is the first important work. (Södermanland; 1537-1596). It still has the irregular plan of a mediaeval castle with two courts, strong towers and undivided walls of red brickwork. The water chateau of Wadstena (after 1535) has an entirely symmetrical plan as an unusually elongated narrow rectangle, whose front side is protected by low and massive round towers as bastions. From about 1560 onward the chateau of Kalmar, dating from the middle ages, was changed into a modern fortress by extensive new structures. The buildings forming its nucleus are picturesquely grouped around an irregular court with round or polygonal angle towers. The wall surfaces are undivided up to the gables. Strongly projecting bulwarks emphasize the fortress character. (Fig. 367). The portals exhibit the predominant style of the developed German Renaissance, yet have a remarkably distinguished and classical expression. Entirely classical is the beautiful fountain in the court (about 1580), which closely adheres to the late Renaissance of upper Italy. * In the interior is the striking apartment of king Eric XIV. it has a monumental tendency and is very well preserved in its former condition. (Fig. 368). It has a strong subdivision of the walls by Corinthian three-quarter columns with heavy cornice and a magnificent ceiling, properly harmonized therewith in its ornamentation.

** In the library of king Eric XIV was found an edition of Vitruvius' works, besides other books on the literature of art.*

To the later Vasa period belongs chateau Wibyholm (completed

1626), whose three wings are grouped around a court. The architecture shows a mixture of the Netherlandish brick style with German forms. Chateau Jacobsdahl (1644) has a wide court, open in front. The main building is subdivided by a colossal pilaster order in the Dutch style. The general design and architecture exhibits numerous Barocco tendencies. Among the private buildings the Petersen house at Stockholm, built before the middle of the 17th century, still has a facade developed to the width of a palace with seven window axes and four stories (the uppermost treated as a half story), and graceful portal and gable architecture in the style of the Netherlandish Renaissance. The same character is borne by a group of narrow and high houses standing on the great market-place, which already exhibit Barocco reminiscences in the treatment of the portal and the gable.

Church architecture in the first Vasa period is best represented by the church of S. Jacob in Stockholm (after 1588), a still entirely Gothic plan with three stories and six bays in the nave and star vaults. Only on the portals and the gables, which are treated like the gables of palaces and houses, is expressed the Renaissance. The most important church building of the second Vasa period is the Trinity church at Kristianstad, begun in 1618 by king Christian IV of Denmark at a time, when the city was still Danish. It consists of a rectangular and wide three aisled nave, which at the middle is enlarged at both sides by an addition like a transept. Two rows of five in each of high and unusually slender octagonal granite piers support transverse arches, on which rest ribbed cross vaults in the Gothic style. The exterior bears the character of the Danish Renaissance by the combination of red bricks with cut stone, by the ashlar angles and bands, and the seven volute gables, treated just like those on houses. (Fig. 369). The architect is unknown. Indeed there also the architecture-loving and art-loving king determined the dominating lines of the design. The Riddarsholm church at Stockholm, transformed from an old Franciscan church and extended by the addition of an entire series of tomb chapels, chiefly possesses importance as the resting place of the Swedish kings (Gustavus Adolphus and others), as well as of the great of the country.

4. Historical Development and Style

England entered the series of the Renaissance under the influence of Bacon (1561-1626). The last phase of the Renaissance, the (1578-1603), (1603-1626), (1626-1642), and (1642-1688) and the administration of justice, etc.

and the East India, and laid the foundation for the later position of the British monarchy as a great power. Under the

monarch, James I. King of Scotland (1566-1625), the three British kingdoms of England, Scotland and Ireland were united

in a national union. In spite of the violent internal disputes, mainly about the rights of the king and the rights of the people,

is evident the reduction of their rights, and the several for

which were signed (1603-1604), (1604-1605), and (1605-1606)

in the 16th century. In the 17th century, in consequence of the

at which, the king was considered as a sovereign power, and

at all the same, which it was considered as a sovereign power,

As the policy of England was based on the idea of a

monarchy, which is its characteristic feature, and its position

the individuality of the national character and its position

colonial activity, so that the history took an independent

and development. At a time in which England, Renaissance

and restoration in other countries had reached a stage of

of the power with the king, in England the power was

some of the people who the power was within it for

he adhered to the royal tradition. First in the second half

V. RENAISSANCE ARCHITECTURE IN ENGLAND.

A. Historical Development and Style.

England entered the period of the Renaissance under the House of Tudor (1485-1603). The last queen of that House, Elisabeth (1558-1603), increased the prosperity of the country by economical rule and effective administration of justice, strengthened the sea power, founded colonies in North America and the East Indies, and laid the foundation for the later position of the British monarchy as a great power. Under her successor, James I, king of Scotland (1603-1625), the three British kingdoms of England, Scotland and Ireland were united in a national union. In spite of the violent internal disturbances, chiefly owing to religion and the rising of the people against the reduction of their rights, and the several foreign wars against Holland, Spain and France, the prosperity continued in the entire 17th century. In the 18th century England, in consequence of its fortunate internal and external politics, rose to that position as a world power dominating all the oceans, which it has maintained to the present day.

As the political history of England was carried on quite independently, thanks to its favorable geographical location, the individuality of its national character and its prominent colonial activity, so likewise the art history took an independent development. At a time in which humanism, Renaissance and reformation in other countries had produced an almost complete break with the past, in England the sound conservative sense of the people with the tough force innate within it long adhered to mediaeval traditions. First in the second half of the 16th century, under the reign of queen Elisabeth, was continued the mighty movement already brought a century earlier from Italy across the channel. The general conditions there were especially favorable for the acceptance of new intellectual and artistic ideas. The concentration of the commerce of the world on the English coasts and the development of the capital at London as a European market wrought a transformation in the economic and social conditions. The tales of the wealth of the new world fostered not only an adventurous spirit to the utmost, they also contributed to an easy a

and lavish tendency of life. The England of queen Elisabeth was inferior in the enjoyment of life to no other country. Her age was one of the most splendid in England's political history. The victorious contest with Spain, then the greatest power, had produced an elevated feeling of joy in the national existence, to which its poet Shakespeare (1564-1616) gave eloquent expression. In his works appeared the signs of the time, in the South and also here, mighty passions and afflictions in superhuman strength.

Of all the arts, architecture in England was most closely connected with the people and the occurrences of their lives. From the great economic and national elevation and the changed intellectual tendency, it received the strongest impulses. The rich merchants developed the idea of home comfort in the satisfaction of their increased requirements for their dwellings in regard to their location, number, size, arrangement and treatment of the rooms. The cities received a changed appearance; The rule of the citizen class already became evident in their architectural style. The nobility lost its warlike and defiant character. At their castles the earlier and often gloomy rooms arranged for attack and defense now gave place to light and splendid porticos. For the seats of the nobles, as for the royal court, the endeavor for comfort and refinement of the entire life was determinative.

The Renaissance forms occasionally appeared already before the middle of the 16th century, but first during the reign of queen Elisabeth were generally accepted. She indeed gave but unimportant architectural commissions (gallery in Windsor), but supplied the nobility with animated impulses for the erection of palaces and country seats. The advancement of the Renaissance was based more on foreign influences and theoretical studies, than on an innate art sense. Already Holbein the Younger (page 298) contributed on his first journey to England (1526) and later during his permanent stay there (after 1532) much to the knowledge of the new style and to its extension. In the year 1563 an Englishman, John Shute, after having been in Italy, published the first English work on the columnar orders; later the writings of Philibert de l'Orme were also translated into English.

is in all western countries, the Renaissance elements first
appeared as a set of conventional forms, without substantially ob-
serving the medieval system of construction. These originated
a picturesque and very convincing mixture of the Renaissance w-
ith the Tudor style, in which the medieval motives were ir-
regularly introduced, while those of the Renaissance executed
an increasing role. Under James I (1567-1603) the
mixture of forms was already completely done, even if the
medieval motifs still existed. But under his successor Char-
les I (1603-1625) the Renaissance was predominant in its entire
range. The art-loving king maintained intimate relations w-
ith two Dutch painters, Rubens and Van Dyck, even collected
art treasures, and was inclined to Romanism as in his politi-
cal and religious opinions, so that the Renaissance found in
him a warm patron. In the second half of the 17th cen-
tury (after 1650) occurred a strong classical tendency in an-
tiquarian circles, that continued until the beginning of the
18th century.

Accordingly three periods are to be distinguished in the e-
volution of the English Renaissance, the early Renaissance
of about 1550-1580 -- the English successor of the Italian
two sections, those of the Elizabethan and of the Jacobean
eras -- the high Renaissance from 1580 to 1620, and the
late Renaissance from 1620 to 1660. The latter period falls
entirely in the time of the Baroque and Rococo styles.

* In England after the French example, from the beginning
of the Renaissance the distinct style tendencies of English
architecture were named after the monarchs then reigning.

In regard to the treatment of the style, the early Renais-
sance is particularly interesting, since it bears an independ-
ent and entirely national character. It is most clearly ex-
pressed in the houses and the country seats of the nobility.
The English country seat preserves the national tradition and
thereby differs as much from the Italian palace as from the
French chateau. It was located in the green landscape as it
had none there, so that it might afford as many and as a
various views of the park as possible. For therefore every

As in all northern countries, the Renaissance elements first appeared as added ornamental forms, without substantially changing the mediaeval system of construction. Thus originated a picturesque and very charming mixture of the Renaissance with the Tudor style, in which the mediaeval motives were gradually suppressed, while those of the Renaissance experienced an increasing refinement. Under James I (1603-1625) the treatment of forms was already tolerably pure, even if the mediaeval mode still reacted. But under his successor Charles I (1625-1649) the Renaissance predominated in its entire purity. The art-loving king maintained intimate relations with two Dutch painters, Rubens and Vandyke, even collected art treasures, and was inclined to Romanism as in his political and religious opinions, so that the Renaissance found in him a zealous patron. In the second half of the 17th century (after 1665) appeared a strong theoretical tendency in English architecture, that continued until the beginning of Neoclassicism (middle of the 18th century).

Accordingly three periods are to be distinguished in the evolution of the English Renaissance, the early Renaissance of about 1560-1625 -- the English subdivide this period into two sections, those of the Elisabethan and of the Jacobean styles * -- the high Renaissance from 1625 to 1665, and the late Renaissance from 1665 to 1750. The latter period falls entirely in the time of the Barocco and Rococo styles.

** In England after the French example, from the beginning of the Renaissance the distinct style tendencies of English architecture were named after the monarchs then reigning.*

In regard to the treatment of the style, the early Renaissance is particularly interesting, since it bears an independent and entirely national character. It is most clearly expressed on the palaces and the country seats of the nobility. The English country seat preserves the national tradition and thereby differs as much from the Italian palaces as from the French chateaus. It was located in the green landscape as if it had grown there, so that it might afford as many and as charming views of the park as possible. Men therefore arranged, in order to also provide side windows for the more impo-

318 important rooms, several projections and recessions in the ground plan, without taking thorough care for the development of a facade in a plane, and chiefly sought to obtain picturesque effects. On these principles could be developed no fixed architectural system. For the extensive structures the ground plan generally shows an arrangement of three wings of the building in the form of a Latin H. Great and well lighted entrance halls, spacious and richly treated stairways (Fig. 370), long and wide galleries are the rooms preferred by location and treatment. Around them are grouped the proper living apartments and the subordinate rooms. The stairs were generally constructed of wood; they have richly carved railings. In the living rooms (Fig. 371) the colossal mantle forms the principal object of the decoration and not seldom extends from floor to ceiling. The bay windows and walls were preferably covered by finely treated wooden paneling, frequently for the entire height of the walls. For the ceiling in a striking way wooden construction was but seldom chosen; stucco was preferred, indeed as an innovation on the former mode of treatment, and to which was given a subdivision into small panels by curved projecting mouldings, with rosettes and sometimes even hanging pendants (in imitation of the late Gothic pendants) at the intersections of the bands. On the exterior the characteristic marks consist of porticos with columns and richly treated heraldic ornamentation, later in several storied and portal structures rising like towers with columns set in pairs (Fig. 375), very large windows divided by several mullions and cross bars, the bay window with m mullions, perforated balustrades, simple narrow curved gables, behind them being concealed the roofs, bay and bell turrets, and numerous strongly accented chimneys, mostly in the form of columns (Fig. 372). In the details is found a bold combination of inorganic forms (Tudor and pointed windows are not seldom flanked by Renaissance pilasters, classical window enclosures cling beneath Gothic gables; yet a certain unity cannot be denied to the whole, so that a tasteful effect is produced. After the forms of details had also become clarified and complete purity had been won (about 1600), the Gothic still influenced the arrangement of the members and the extended

proportions (Figs. 373, 376). The amount of stone and stucco decoration at first seems to have been chiefly foliage in the hollows and friezes, and it is very similar in modeling to that of the French Renaissance of Francis I; later it passes into the style of the German overlaid and rolled work.

The chateaus mostly rise from great terraces, from which steps lead down into the lower ornamental gardens, laid out in the Italian taste, which in their turn were again enclosed from the external park by fine ornamental grilles. Besides stone construction in the English early Renaissance wood construction also was highly developed. Not only in the country but also in the cities are preserved a great number of charming monuments, thanks to the durability of the materials (mostly walnut or oak). On the houses the greater part of the surface of the facade is occupied by windows, frequently so much so that the front walls appear to be constructed of wooden framework with glass panels. The country seats as a rule do not exceed two stories. But in the cities the wooden houses have several stories projecting beyond each other with bay windows and steep gables. The effect is based on the proportions of the openings to the wall surfaces, and in these on the alternation of woodwork and plastered surfaces. Characteristic is the parallel portions of the vertical posts and of the oblique ties, repeated with such narrow intervals, that only a narrow strip of wall lies between them, about the width of the timbers. Otherwise the chief decoration is formed by crossed circular and quatrefoil cut timbers (page 88; Fig. 374). Surface ornaments likewise occur generally, but actual works of the sculptor are rare.

The Elisabethan style also continued under the reign of James I (1603-1625), indeed with increasing refinement. With the end of the first quarter of the 17th century, the style matured into the high Renaissance. The Italian series of forms was adopted with all its consequences, under the lead of a great master trained in Italy, indeed in the conception represented by Palladio. Thus arose on English soil buildings, which charm us, even if creations from the school of the great Vicentine were to be transferred to the high North. The activity of the principal master was at this stage rather as

was confined in a more secluded manner. The architecture in the grand designs frequently makes an imposing impression; but the details often suggest cold and lifeless. The tendency of correspondence so strongly to the English and Scottish, that it seemed an innumerable multitude to the visitors coming as of the baroque style, penetrating into nearly all civilized countries about the end of the 17th century.

5. The Most Important Monuments.

The earliest work of the English Renaissance is the tomb of Henry VII and his wife in Westminster Abbey (1512), by Francis Torbiano from Florence, a fellow pupil of Michelangelo. It is a solemn free structure of marble with various ornaments, most freely adorned by sculpture. Giovanni da Udine, pupil of the early Renaissance was by an English, Longland House, erected in 1537-1539 by Giovanni da Udine. The architecture is restrained in relatively severe forms. But in the 16th and 17th centuries the master followed the custom of the country, when he embodied the facade of the rectangular building by many projections and treated the wall surface as merely light contrast. As the first native architect is named John Roke, already known by his literary labors (1585), and architect of the queen. His practical activity as soon as of that period departed he died in 1604. He was succeeded by John Roke, the great master of the early English Renaissance. He began his abundant activity about 1590. He passed on the creation of the most important country seats of that time. In the 16th century the English Renaissance was characterized by three narrow hall structures by projecting facades and poly-oval towers; hollow ball in the center (1590-1600). The last examples of a massive stone building with single windows like towers, already decidedly adopting Renaissance forms by the use of pilasters and columns in the main structure. Yet retaining the great million windows and with the total still on the side buildings, which are imitated from the Italian, but for two very broad round towers at the angles and corners.

designing in the same spirit, than as imitating. In the late Renaissance the form canon became in general more severe and was handled in a more calculated manner. The architecture in its grand designs frequently makes an imposing impression; but the details often appear cold and lifeless. This tendency corresponded so strongly to the English art spirit, that it opposed an insurmountable obstacle to the victorious course of the Barocco style, penetrating into nearly all civilized countries about the end of the 17 th century.

B. The Most Important Monuments.

The earliest work of the English Renaissance is the tomb of Henry VII and his wife in Westmenster Abbey (1518), by Pietro Torregiano from Florence, a fellow pupil of Michelangelo. It is a splendid free structure of marble with arcades on piers, most richly adorned by sculptures. Likewise the first great chateau of the early Renaissance was by an Italian, Longleat House, erected in 1567-1579 by Giovanni of Padua. The architecture is restrained in tolerably severe forms. But in the ground plan the master followed the custom of the country, when he subdivided the facade of the rectangular design by many projections and treated the two small courts as merely light courts. As the first native architect is named John Shute, already known by his literary labors (page 326), and architect of the queen. His practical activity as such was of but brief duration; he died in 1584. He was succeeded by John Thorpe, the great master of the early English Renaissance. He began his abundant activity about 1570. He passes as the creator of the most important country seats of that time. Burleigh House (1577), whose garden front is entirely resolved into narrow wall surfaces by projecting facades and polygonal towers; Wollaton Hall in Nottinghamshire (1580-1588), that exhibits a massive middle building with angle structures like towers, already decidedly adopting Renaissance forms by the use of pilasters and columns in the usual sequence, yet retaining the great mullioned windows and with graceful gables on the angle buildings, which are imitated from the Netherlandish; Longford Castle near Salisbury (1591-1602) with proud, low and very broad round towers at the angles and open

located in two blocks on the north side of the main road (see plan). The main block is a two-story building, the other a single-story building. The main block is a two-story building, the other a single-story building. The main block is a two-story building, the other a single-story building.

only and internally. (Plan, 272, 273). The main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building.

of the main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building.

the main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building.

the main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building. The main building is a two-story building, the other a single-story building.

work, a colonial style for London, which is a later second design be enlarged into a still greater design. According to the plan the structure is a rectangle 1200 x 800 ft. and was to consist of seven courts, an entrance, a central court and three smaller courts at each side. The main part of these were to be as attached courts. Unusually only two end wings were to be attached, having a width of seven feet. The structure is to be a two-story building. Only in one corner the British master and

loggias in two stories on the middle structure of the main facade; Holland House in Kensington near London (completed in 1607), distinguished by picturesque grouping, rich and varied external architecture and numerous gables; Hatfield House in Hertfordshire (built in 1611) with splendid treatment externally and internally. (Figs. 375, 376). The middle building of the garden facade is indeed the most magnificent show piece in cut stone architecture of the developed English Renaissance. Likewise a great number of "Colleges" (page 115) in Cambridge and Oxford expressly present examples of the Elizabethan style. At the entrance of the Bodleian Library at Oxford, Thomas Holt in 1597-1602 placed five stories of columnar orders over each other, that are coupled in pairs and flank the round-arched portal as well as the mullioned window. One of the latest principal works of the early Renaissance is Aston Hall near Birmingham (1618-1635), a relatively simple building, but characteristic for the greater number of the English country seats of this time. (Fig. 372). Besides the seats of the nobility and the public buildings, the citizens' architecture of the early Renaissance in an entire series of cities is represented by works meriting consideration, both in stone and in wooden construction.

The chief master of the English high Renaissance was Inigo Jones (1573-1651), whom the English revere as their greatest architect. He was twice in Italy for continued studies, and there became a zealous representative of the tendency of Palladio. No other northern master entered so deeply into his spirit as Jones. His architectural activity commenced about 1604. In the year 1615 the king appointed him superintendent of buildings. Soon afterwards he designed by order his chief work, a colossal palace for London, which in a later second design he enlarged into a still greater design. According to this the structures formed a rectangle 1200 × 899 ft. and were grouped around seven courts, an elongated middle court and three smaller courts at each side. The middle ones of these were designed as arcaded courts. Unfortunately only the banquet hall, Whitehall, was completed, having a width of seven window axes. The structure closely adheres to Palladio's works. (Fig. 377). Only in one point the British master did n

not found in the treatment of his Italian inspirations; he made
no use of the combination of several stories. * However, it is
in two stories. The ground floor above a rusticated base has
on the four inner window sills three-quarter columns of the
Ionic order in the lower and of the Corinthian in the upper
story, at each side of the outer windows being a rusticated pil-
lar in isolated columns at both angles. Above the main cornice a
crowning balustrade. On the garden facade of S.
John's college in Oxford (1581-1582), James referred to "an aban-
don in the arrangement, still collecting the structural membe-
rs in Renaissance forms. Of the other works was to be men-
tioned: - Raphael Hall in Norfolk (1580), the former villa of
the queen in the park of Greenwich, whose middle projection
in the upper story was resolved into a loggia with six col-
umns; Wilton House in Salisbury (1540) with the splendid two-
storey loggia as the "single and double chimes", as well as Ashburn-
ham House in Westchester with an imposing gateway. On the
corner of S. Paul in Covent Garden at London he built a portico
too, where the first projected the screen of the columnar
screen with Corinthian columns and walls gave to church ser-
vice. As a particularly beautiful work was executed the
no longer existing facade of Somerset House.
Jones was one of the great masters of architecture. He mo-
st admirably embodied the ground principles announced by
himself: - "Order in the treatment of building, solidity in
construction, strength and firmness in style". He was a mas-
ter in combining architectural means and in establishing
the proportions, grand in the architectural disposition, dis-
tinguished in architectural expression, adding everything
nearly essential and little. His works are characterized as
unified creations of an artistic individuality, full of con-
sistent, mature, with a sovereign certainty of the treatment of
relations in materials and forms.
After our death occurred a period of repose in the develop-
ment of English architecture. It first arose in a new avan-
ce at the time, when Christopher Wren, the original master
of the English late Renaissance began his epoch-making activi-
ty. The cessation of this succession, allied to the great

not tread in the footsteps of his Italian instructor; he made no use of the combination of several stories. * Whitehall is in two stories. The proud facade above a rusticated base has on the four inner window piers three-quarter columns of the Ionic order in the lower and of the Corinthian in the upper story, at each side of the outer windows being a pilaster with coupled columns at both angles. Above the main cornice extends a crowning balustrade. On the garden facade of S. John's college in Oxford (1631-1635), Jones adhered to tradition in the arrangement, still clothing the structural members in Renaissance forms. Of his other works are to be mentioned :- Raynham Hall in Norfolk (1630), the former villa of the queen in the park of Greenwich, whose middle projection in the upper story was resolved into a loggia with six columns; Wilton House in Salisbury (1640) with the splendid rooms known as the "single and double cubes", as well as Ashburnham House in Westminster with an imposing stairway. On the church of S. Paul in Covent Garden at London he built a portico, where he first transferred the scheme of the columnar temple with Corinthian columns and angle piers to church architecture. As a particularly beautiful work was esteemed the no longer existing facade of Somerset House.

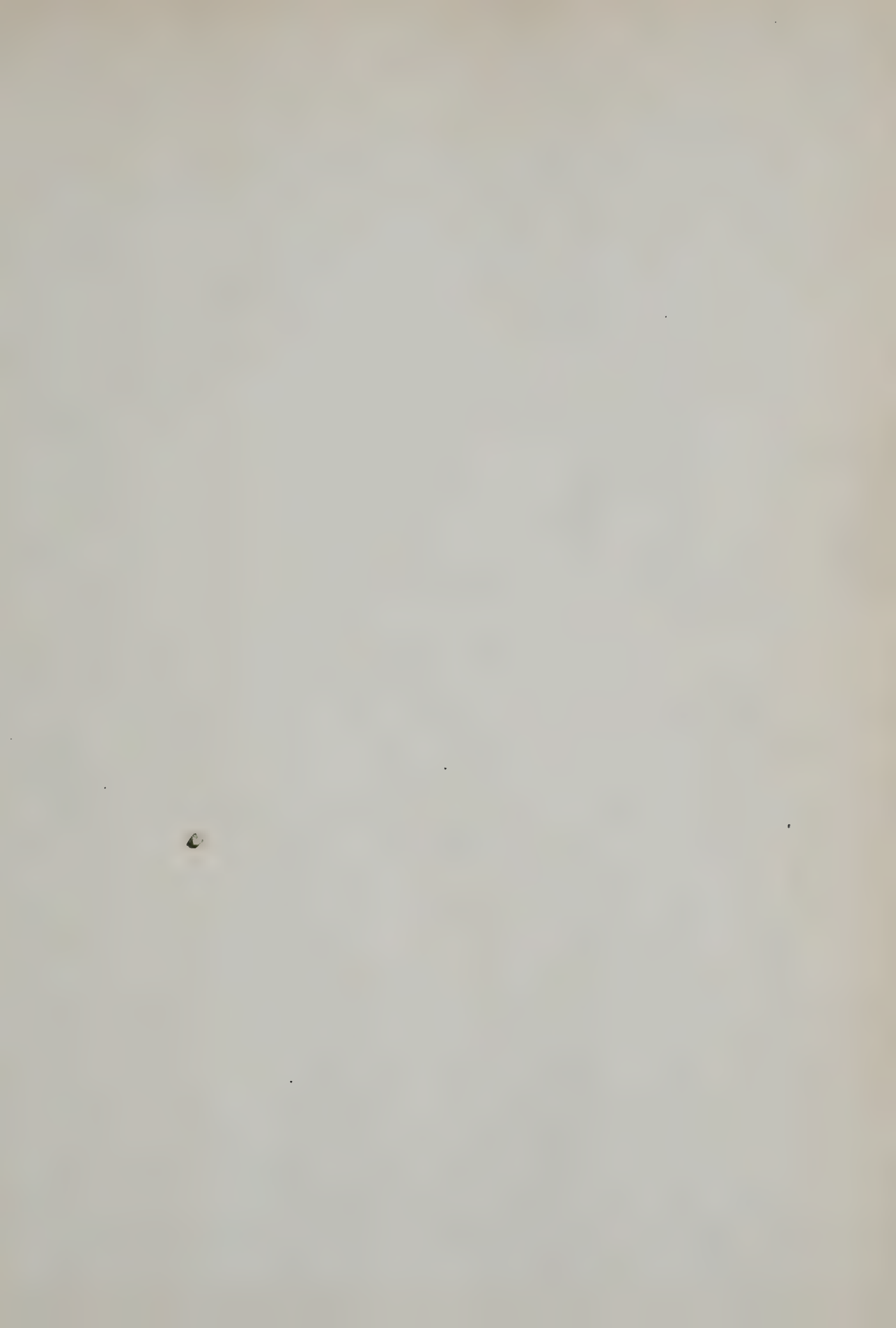
Jones was one of the great masters of architecture. He most strikingly embodied the ground principles established by himself:- "Order in the treatment of buildings, solidity in construction, strength and freshness in style". He was a master in dominating architectural masses and in establishing the proportions, grand in the architectural disposition, distinguished in architectural expression, avoiding everything merely external and little. His works are characterized as unified creations of an artistic individuality, full of character, mature, with a sovereign certainty of the treatment of interiors in materials and forms.

After his death occurred a period of repose in the development of English architecture. It first arose in a new advance at the time, when Christopher Wren, the principal master of the English late Renaissance began his epoch-making activity. The creations of this successor, allied to the great

Jones in 1912, originated in the early 1910s. Jones
 We shall therefore consider them in the next section.
 The early history of the Jones family is not well known.
 The Jones family is not well known.

Jones in spirit, originated in the period of the Barocco style. We shall therefore consider them in the next volume.

* ,ater masters, John Vanbrugh, James gibbs and others generally employed the colossal order.



Concert Hall in Leipzig, completed in 1884 by his associate S Schmieden, that in its Hellenistic-Classistic Renaissance produced a very distinguished impression. Herman Ende (1830-1907) treated the Museum of Ethnology at Berlin (1880-1886) in the heaviest forms of the Italian high Renaissance, particularly in its circular building constructed at the corner of two streets. Kayser & von Grosheim passed from the Italian to the German Renaissance in the Buchhändlerhaus (Book-dealer's house), which they created in Leipzig (1886). Later they turned to Schlüter's barocco. Berlin architecture of modern times reached the climax in the Reichstaghaus (Diet Palace) erected by Paul Wallot (page 324) (Fig. 272), which rises on an area 450.8×306.1 ft. with an assured mastery of the internal treatment and of the architectural masses, developed on a Classicistic-Barocco basis, full of character, with an architecture in the form combination of aspiring forces, strikingly expressing the purpose of the structure, and to be counted with the most prominent secular works of the 19th century.

In Leipzig Ludwig Hoffman and Paul Dybwad erected the building of the Imperial Courts (Reichsgerichts) (1887-1895); the architectural masses are dominated by a mighty dome and exhibit a dignified Classicistic clarified architecture holding a mean between the Italian and the French Renaissance. The Grassi museum (completed 1895) was created by Hugo Licht (born 1842), a pupil of Lucae, has a highly monumental effect by its facade of 12 Composite columns, recalling palace Czernin in Prague (page 160), which stand on a rusticated lower story and extend through two stories. The same master gave a very good example in the rebuilding of the city hall at Leipzig, grouped around the principal tower of the old Pleissenburg, for the utilizing of the native Renaissance, rooted in the spirit of the locality, in a very picturesque conception.

At Hanover Carl Wilh. Hase (1818-1902), an important representative of north German brick Gothic, and a highly esteemed instructor at the Polytechnic school, to whom adhered a widely branches school as the "German Viollet-le-Duc". Hase restored with thorough understanding and reverence a great number of mediaeval churches, erected at Hanover the Provincial Museum (1853-1856) in a modern conceived Romanesque style, the Gh-

Christus church (1859-1864) as a cross-shaped basilica in the style of the developed north German early Gothic, to which the master and his school remained faithful for a long time. His chief work was the restoration of the Marienburg, which his pupil Edwin Oppler (1831-1900) completed, and who had also worked under Viollet-le-Duc.

In Cologne the renewal of the works for the completion of the cathedral, which required an expenditure of six million dollars, and was regarded as a national problem for the entire German people, afforded particular evidence of the swelling waves of inspiration for the middle ages. As the leading architects were employed Architectural Inspector Ahlert from 1824 to 1833, and after him on Schinkel's recommendation Ernest Fried. Zwirner (1802-1861), particularly important as a constructor, and after his death, Richard Voigtel (1829-1902). The cathedral was completed in the year 1880. The severity of the prevailing esthetic conception, which employed similar masters everywhere, that the same structural problem was to be solved or indicated, led to a certain monotony, which distinguishes the new portions of the structure from the older ones, created rather according to freer artistic views. Among the numerous great churches, which were restored and completed in the 19th century -- there may be mentioned here only the cathedral at Spire by Hübsch, the minster at Ulm by Thrän, Scher and Beyer, the cathedral at Regensburg by Densinger -- the construction of the cathedral of Cologne occupies the first place.

In Karlsruhe the Museum for the combined collections (1865-1870) erected by Joseph Berk Müller (1800-1879) bears the stamp of a still pedantically conceived Italian high Renaissance. After him, Architectural Director and Professor in the Polytechnic school, Joseph Durm,* also very fertile as a writer on architecture (born 1837), was the most influential representative of the Renaissance. On his most prominent buildings, the Festhalle (Festal hall), palace Schmieder (now palace of prince Max), and palace of the hereditary grand duke in Karlsruhe, appears a transition from the at first refined Hellenistic conceptions to a stately and extremely rich Italian high Renaissance, and from this to the Barocco. In contrast to him was Carl Schäfer (1844-1908), esteemed as a Gothicismist and instruc-

instructor at the Polytechnic school, whose principal work was the University hall at Marburg. About the end of the 19th century the architectural firm of Gurler & Moser stood in the foreground of architectural activity in Karlsruhe. In their church buildings, such as the Christus church at Karlsruhe and the church of S. Johann at Mannheim, they show themselves adherents of a picturesque and freely designed mediaeval conception; on the contrary in their secular buildings (palace of crown prince in Karlsruhe) they fall into the ranks of modern artists. In Mannheim Bruno Schmitz (born 1856), well known as an architect of memorials (Kyffhaus Monument), created the Rosengarten (Fig. 273), a concert and festival hall, in which is shown the transition to the newest tendency in art, freeing itself from all historical forms.

* *Durm's most important works on the history of architecture are: Baukunst der Griechen, Baukunst der Etrusker und der Römer, and Baukunst der Renaissance in Italien, in the Handbuch der Architektur.*

Stuttgart received in the Villa Wilhelma one treated entirely in the Moorish style, built in 1842-1852 by Carl Ludw. Wilh. v. Zanth (1796-1857). The Royal building (Königsbau) designed by the Classicist Joh. Mich. Knapp (1793-1856) and executed by Chr. Fried. Leins (1814-1892), is a still strongly Classicistic building, touched by the early work of the Renaissance, opening in a great colonnade toward the Schloss Place. The picturesque Protestant church of S. Johann (1866-1876) located on Lake Feuer, is treated charmingly in the Gothic cathedral system of the best period, but without finding the correct scale for the proportion of the whole to the abundance of decorative forms. Joseph von Egle (1818-1899), an influential instructor in the Stuttgart Polytechnic school, erected in Stuttgart the Polytechnic school (1860-1863) in an Italian high Renaissance, permeated by French motives, and the Maria church as a hall structure in the forms of the early Gothic. Skjold Neckelmann was the creator of the State Industrial (Landesgewerbe) Museum (1890-1896), treated in a bombastic early Barocco, whose principal room, the King Carl Hall, is showily decorated. The latest monumental building of Swabia was erected by J. Vollmer and H. Jassoy in the City Hall at Stuttgart, com-

completed in 1905, which in its modernized Gothic forms fits very well into the view of the city.

In Munich about the middle of the 19th century, Fried. Bürklein (1813-1872), at the desire of the king, who wished to have a new architectural style, made the attempt to fast together mediaeval and antique form elements, without thereby attaining to an organic unity of style. The Maximilaneum erected by him on a dominant terrace as a termination of the Maximilianstrasse, conceived in Gothic but translated into Italian Renaissance by the influence of Semper, and the Government Building (1858-1864), rather representing mediæval forms, can be just as little satisfactory, as the opposite Old National Museum, built by Edward Riedel (1813-1885). Freedom from this unfortunate "Maximilian style" came to Munich architecture with the appearance of Gottfr. von Neureuther (1811-1887), a pupil of Gärtner and a zealous advocate of the Italian Renaissance. His Polytechnic School there (1866-1870) is characterized by picturesque design and refined feeling for the treatment of details. (Fig. 274). The Academy of Art (1873-1885), both in the arrangement of the ground plan, as well as the grand treatment of the facade and the careful erection (the facades are of marble) is an equally distinguished architectural work.

The accession of Louis II (1864) was important for the architecture of the Bavarian court, in so far that the art-loving young king showed from the first an unusual desire to build. He followed his romantic enthusiasm, and for the embodiment of his ideas called an architect, who possessed neither the power nor the capacity to guide the rich endowment of the king into fruitful paths. Thus under the charge of George Dollmann (1830-1895), a pupil of Klenze, and with the assistance of Joseph Hoffmann (1840-1893), the capricious chateaus of the Bavarian king, the ^{Academy} Royal chateau of Linderhof (1869-1878), located in direct isolation in the forest of upper Bavaria, the chateau of Neuschwanstein (1869-1886), fabulous as a theatre decoration changed into stone, and built in a charming Alpine landscape, designed by the court painter of the theatre, Chr. Plank, with the rich internal ornamentation (Fig. 275), and finally the chateau of Herrenchiemsee (1878-1885), produced in veneration of the sun king Louis XIV and imitated from Versailles.

Likewise in the art of the citizens of Munich was expressed the inclination of the character of the people toward picturesque treatment. Meanwhile and under the influence indeed of the "old German" art industries enjoying high esteem in Munich, for which George Hirth had opened the way in literature with his "Formenschatz der Renaissance" and his "Deutschen Zimmer", this had turned to the German Renaissance with its picturesque grouping, bay windows, gables and small towers. Lorenz Gedon (1843-1883), highly gifted as architect and also as sculptor, aroused very great attention to this by his rebuilding of the Gallery of count Schack (1872-1874) in an extremely rich and freely conceived German Renaissance. Gedon later devoted himself entirely to the decorative arts. His exuberant imagination soon found the way to the Barocco and the Rococo, for which he prepared the ground by his influence in architecture. The middle ages further celebrated a revival in Munich in the city hall erected in 1867-1879. (Fig. 276). In the competition preceding it, George Hauberissen won the victory (born 1841), who had educated himself in the Munich, Berlin and Vienna schools (there under Schmidt, page 333) for great creations, chiefly by his design calculated for picturesque effect.*

33/ The most amiable and intellectual later representative of the German Renaissance in a deeper but freer conception is Gabriel Seidl (born 1848). All his works are very effective in general, individual in details, dignified and attractive by the harmonious decoration. His monumental church of S. Anna at Munich (dedicated 1893) is treated in the southern German Romanesque style, the Künstler (Artists') House is in external appearance in German Renaissance, but the great hall is splendid in a freely transferred early Italian Renaissance, treated with refined feeling. Gabriel Seidl's most important building is the (New) National Museum (1894-1900). In the design of the structure and the treatment of the interiors, in which the native art was to be represented, where style conditions are indeed in place with regard to their historical presuppositions, Seidly showed himself a distinguished eclectic of refined feeling. For each connected group according to place and time, he created a corresponding interior, which was also characterized as such externally. The different parts of the building are

picturesquely combined in an unconstrained manner. (Fig. 277). Besides Seidl, Friedrich Thiersch (born 1852) worked in Munich, who in his colossal Palace of Justice (1891-1897) erected a Barocco structure of dignified and highly monumental effect. Since the end of the 19th century came into use a citizens' and cheerfully attractive Barocco, which by a series of architects of modern ideas has been transformed in the modern spirit.

** Hauberisser was otherwise an adherent of the German Renaissance, which he very expressively showed on his city hall at Wiesbaden.*

The architecture of SWITZERLAND received a great advance through Semper (page 332). The Italian Renaissance entirely dominates the field of work, often with a Barocco addition showing itself in the ornament. On a great number of banks, commercial and residence buildings, it came into use, partly in a monumental treatment. In Zurich the Northeastern Railway station (Fig. 278) erected by J. F. Waner permits the direct recognition of Semper's influence. The Neo-Romantic is only represented by a prominent work in the picturesque Landes (National) museum (1892-1898), built by Gull. The magnificent Ton 332 (concert) hall (1893-1895); Fig. 279) was created by the Vienna architects Fellner and Helmer. In the federal capital of Berne, Studer built in 1857 the federal Legislative Building (Bundesratsgebäude) in the Florentine palace style of the early Renaissance. From 1894-1902 it was enlarged into a design of grand style by the gifted Hans Auer (1847-1906) a pupil of Semper and assistant of Theophilus Hansen (page 304). The imposing middle portion, containing the hall of representatives, projects in semicircular form above a massive rusticated lower story, with a colossal Composite order of columns, flanked by two towers and covered by a dome for admitting light. The form treatment is a mean between the Florentine early and high Renaissance, and is very happily adapted to the earlier building. It lends to the palace, enthroned majestically above the deeply sunken valley of the Aar, an extremely dignified impression. In the most recent time the architecture of Berne has turned to the Barocco style, existing there in numerous works of the 18th century, which by original treatment of the details, and particularly by the great projection of the roof pec

peculiar from ancient times to the houses of Berne, and has experienced a national transformation.

The imperial AUSTRIAN city of Vienna became an important centre of art culture in the second half of the 19th century. The fortifications, that surrounded the old city and thus obstructed a free development of architectural activity, were torn down (after 1858). In their places originated the great Ringstrasse, on which rose one magnificent structure after another. After the middle of the century, Edward von der Null (1812-1868) and August von Siccardsburg (1813-1868) by their joint labors broke out a freer path. On their principal work, the Grand Opera (1861-1869), which opens in a doubled loggia to the Ringstrasse and is richly treated in the external architecture as well as the internal decoration; they employed the forms of the developed Italian and French early Renaissance in happy combination. But the direction struck out by them excited no great imitation. In the year 1846 the Dane, Theophilus Hansen (1813-1891; page 304) came from Athens for a permanent residence in Vienna, where he erected the University in 1837-1842 in the Classical style (in 1860 he built there the Academy of Sciences in the style of the Parthenon). There he became the creator of the immense Parliament House (1874-1883), which is built on an entirely symmetrical ground plan 531.5×459.3 ft. in a Renaissance style, which by a cheerful and extremely attractive Hellenism, particularly on the porticos of the middle and angle projections, receives an independent stamp. Hansen was also an eclecticist. The Museum of Arms at the Arsenal (completed 1856) and the Greek church on the Fleischmarkt (1858), he treated in a picturesque Byzantine style approximating in details to the Hellenistic series of forms; on the Academy of Art (1872-1876) and the Bourse (1872-1877) he transferred his Hellenism to the Italian high Renaissance.

While Hansen afterwards brought the Classicism into high consideration, Heinrich von Ferstel (1828-1883) represented the Romantic tendency. His Votive church (Fig. 280), erected 1856-1879 for the sin of the attack on the emperor, is indeed the most mature German church building of the Neo-Gothic. Ferstel saw his strength more in the Italian high Renaissance than in Gothic. The buildings of the Austrian Museum for Art and Ind-

Industry (1868-1871) and the University (1874-1884) are each distinguished by a very beautiful arcaded court, and exhibit the Italian high Renaissance in a noble and powerful treatment. (Fig. 281). More severe than Ferstel in acceptance of Gothic, Fried. Schmidt (1825-1891), came from Wurtemberg, was trained in the workshops of Cologne under Zwirner, and from 1862 established as cathedral architect of S. Stephen in Vienna. In the extremely picturesque Parish church at Fünfhaus near Vienna (1867-1875), he erected an octagonal central structure with a great dome and two front towers in Rhenish Gothic. (Fig. 282). His principal work, the City Hall in Vienna (1872-1883) is in its way a model creation, by the splendid design of its ground plan, finely satisfying the requirements of a good administration and by the Renaissance motives happily combined with Gothic architecture.

The architectural activity of the imperial court was continued in the paths previously sketched by Semper (page 322). When Semper came to Vienna, the ground plan of the K. K. Court Museum had been designed by Carl von Hasenauer (1833-1894), working there besides the masters just mentioned, who had received his training in Brunswick and Vienna, then undertook extended tours through Italy, France, Holland and England, and in Vienna at the beginning of the sixties had made himself conspicuous by some secular buildings, that caused much surprise. A violent contest broke out concerning its plan and architecture, in which Semper was required to make the decision. He subjected Hasenauer's plan to a revision, and with the collaboration of Hasenauer, he prepared a grand general plan, in which the Hofburg theatre should occupy a prominent place. He gave to this the form of plan, which he had projected for the unexecuted Richard Wagner Festival Hall at Munich. Semper was further engaged on the structure of the Court Museum (begun in 1872). The facades (Fig. 283) recall the Dresden Gallery of Paintings, but already show a transition to the Italian Barocco style. The Hofburg Theatre was executed in 1880-1886 by Hasenauer alone, since Semper would no longer work together with this rival, who violently opposed him, and had left Vienna in 1876 (page 323). Both in the external architecture as well as in the splendid interior decoration of this theatre

(Fig. 284) was manifested the complete transition to Barocco showiness. Hasenauer doubtless possessed strong decorative talent; but in the grand monumental treatment he remained inferior to the previously mentioned masters. In the most recent years Otto Wagner (born 1841), an architect educated in Vienna and Berlin, stands at the centre of architectural creation in Vienna. But his activity and that of his numerous pupils and adherents belongs substantially to the modern tendency in art, as the principal founder of which, Wagner is to be taken. (Page 366).

Likewise in the Hungarian capital of Budapest, architecture in the 19th century in evident competition with Vienna assumed an unusual advance. Numerous churches and secular buildings were erected and indeed during the first half of this century entirely within the bounds of Classicism. Later the architecture in general took a development similar to that in Vienna. The most prominent representative of the Neo-Renaissance was Nicolaus Ybl (1814-1891), educated in Vienna, who erected the cathedral of S. Stephen, begun (after 1868) by Joseph Hild (died 1764), and the Opera House (1879-1884) in the most mature and luxuriant style of the Italian high Renaissance. On the more important of later works, the Parliament House erected (after 1882) in colossal dimensions by Emanuel Steindl (Fig. 285), the architecture of Budapest returned to mediaeval forms.

2. France.

The change from the Classicistic bounds retained by the Empire style occurred at the beginning of the thirties. Already Percier, although he recognized Grecian architecture as a perfected model, had recommended for France the architectural forms of the Italian Renaissance as better adapted to the climate and the requirements of the country. But also the native art of the past found an increasing interest. By Jacques Felix Duban (1797-1870) in rebuilding the Ecole de Beaux Arts, remains from the French late Gothic and Renaissance were utilized with great reverence and refined taste. * The chateau at Blois (volume 2, pages 156, 264) and the Gallery of Apollo in the Louvre (page 93) owe to him their intelligent restoration. The gifted Henri Labrousse (1801-1875), pupil of H. Lebas (page

253) held himself entirely free from the classical restraint. He devoted particular attention to iron construction. At his Library of S. Genevieve (1840-1850), he covered the great reading room in a manner forming a model for the purpose, by a system of low domes resting on slender cast iron columns. Each dome has at its vertex a great glazed circular opening as a skylight. The facade bears the character of an early Italian Renaissance. The ground story has only a simple round-arched doorway and small round-arched windows; above the belt cornice, ornamented by garlands, the upper story rises with a subdivision by a continuous series of great round-arched windows, walled up in the lower half, whose intermediate piers like wall strips stand on the belt cornice. Likewise the new reading hall of the National Library was rebuilt in 1850-1855, and is constructed in a similar manner. Joseph Duc (1802-1878), a pupil of Percier, was rather inclined to a Classic-Grecian severity. His rebuilding of the Palace of Justice at Paris, begun in 1859 (Fig. 286), was partly destroyed by fire in the revolution of 1871, but was again restored later. To the same tendency belongs Hittorf's last great work, the Northern Railway station at Paris (1863), which by the grand iron construction over the hall 229.7 ft. wide, and by the facade opening in colossal round arches, as well as by its covering by doubled Ionic pilasters with a connecting pediment of gentle rise, produces almost a modern impression.

** The view from the court of the chateau of Anet reproduced in Fig. 303 of volume 2 (page 261) was transported by Duban to Paris.*

To these works of the early Neo-Renaissance the adherents of the Neo-Romantic tendency opposed the Gothic. The first of their larger buildings was the church of S. Clotilde in Paris, (1846-1857), arranged as a basilica with two pointed front towers, that Franz Christian Gau (1790-1853) from Cologne commenced in an early Gothic, yet timid treatment, and Theodore Balgu (1817-1885) completed in already more mature forms. The Neo-Gothic received a deeper tendency in the works of the important Jean Baptiste Lassus (1807-1857), who was a pupil of Labrouste, but then turned from the Renaissance and became a passionate advocate of the Gothic. The highly gifted Viollet-

le-Duc (1814-1879) joined him, just as a distinguished learned man, who investigated the middle ages in an exact and scientific method, as well as a talented architect of unusual creative powers. The magnificent restoration of the S. Chapelle (after 1838) and of Notre Dame cathedral (after 1842) in Paris, (volume 2, pages 100, 102), for which Lassus had previously prepared plans, are his work. Of his numerous other works of restoration, that of the castle of Pierrefonds (volume 2, page 156) stands in the first rank. The very harmonious court of the castle (Fig. 287) shows, how deeply the master had penetrated into the spirit of the middle ages. He prized the originality and stylistic correctness of the Gothic, but demanded particularly not a mere imitation, but a thorough grasp and basal working out of the architectural problems, with an independent employment of historical forms. By his numerous publications, which form a very valuable basis for the study of the Gothic church and secular architecture, even if we can no longer accept his decisions on all points, Viollet-le-Duc has created the greatest and most enduring influence. Leon Vaudoyer (1803-1872) joined Lassus and Viollet-le-Duc as a representative of the mediaeval treatment of forms. He had received a Classicistic training, but had then passed over to the Gothic. On his cathedral at Marseilles (after 1855), a three aisled cross plan with semicircular choir, outer aisle and circle of chapels, a great dome over the crossing, two small domes over the cross arms, and two front towers above a portico, he indeed resorted to southern French Romanesque forms with the use of colored materials, that recalls the buildings of the Pisan school (volume 2, pages 15, 50). In the second half of the 19th century and under the government of Napoleon III, who endeavored by zealous fostering of commerce and industry, sciences and arts, to strengthen and increase the esteem for the crown, a series of grand architectural problems fell to the French architects. By their excellent training in both construction and the treatment of forms, they acquired a position dominating almost the entire architecture of the West. The introduction of iron into monumental architecture made greater advances. Victor Baltard (1805-1847) erected in the colossal Central Market Halls in Paris (1852-1874), calculated for 3000

sale stalls, a glass palace constructed of iron and glass above a brick base, a model for the European continent. * In a novel and bold manner he then introduced the iron construction with an additional prominence in his fine church of S. Augustine in Paris (1860-1868). On the site given by two diverging streets, widening from the facade to the choir, he arranged in a very happy manner a basilican nave with side chapels of ever increasing depth, and in addition thereto a great central area on an irregular octagon with three side apses and chapels. The construction followed as an iron framework in combination with stone. The vertical supports are executed in cast iron, the vaults and ribs, as well as the pendentives, the dome and the lantern, are of wrought iron. For the ornamentation Baltard borrowed the decorative forms of the stone architecture of the early Renaissance. Thus he was not so far advanced, as to give to iron independent forms developed from its metallic character.

** A crystal palace had already been built in London for the World's Exhibition of 1851.*

As a church architect, the previously mentioned Théodore Ballu (page 337) enjoyed high esteem at that time. His principal work, S. Trinite at Paris (1861-1867) in the two story facade with middle tower rising above three round-arched portals, exhibits an early Renaissance, which in the window treatment and triforium adopted many motives from the Romanesque style, but also in the numerous breaks in the cornices and the niche architecture some of the late Renaissance. Ballu designed and had charge, together with Pierre Joseph Deperthes (1833-1898), of the rebuilding of the City Hall in Paris (volume 2, page 258), where the ancient plan and structure in general was retained. The very rich external and internal architecture acquired the character of the developed early French Renaissance.

The architecture of France in the second empire is indeed most strikingly characterized by the Grand Opera in Paris. To obtain designs for a new opera house, a competition was ordered in 1860. The prize was won by a pupil of Lebas (page 253), Charles Garnier (1825-1898). In his design he had not only expressed the purpose of the building by indicating rooms for a

access, the audience and the stage rooms, even externally in a happy manner, but he had also created an architecture intermediate between the Italian high Renaissance and the style of Louis XIV, which was received by the most lively approval by the deciding committee. Already the facade had an extremely showy effect. It is arranged with seven axes, the two outer ones being treated as projections. Above the ground story opening in round-arched doorways is arranged a loggia occupying the entire width, with coupled columns after the style of the Venetian high Renaissance, a massive crowning cornice, and a high attic, indeed not fortunate in its proportions, over richly decorated by ornamental and figure ornamental work. The polychrome treatment by the use of red Jura stone beside white and Swedish marble, and also partly by gold, even heightens the truly unexpected effect. In the interior, particularly the stairway (Fig. 288) and the foyer are showy interiors almost unequaled, which gave to the French court and the distinguished Paris world assembled there, a striking background. The completion of the building externally followed in 1867, in the interior in 1875. On the Theatre and the Casino at Monte Carlo, Garnier produced a still luxuriant Barocco, but one restrained within fixed bounds.

The most important Paris church building of this time is the Expiatory church of Sacre Coeur on Montmartre, on the basis of a competition, which fell to the architect Paul Abadie (1812-1884), who worked on Notre Dame under Viollet-le-Duc, after 1874 had independent charge of its restoration, and had built in southern France (Angouleme, Bordeaux) some Neo-Romanesque churches and city halls. The ground plan has the form of a Greek cross with a great choir addition, in accordance with the cathedral system, and a deep porch. Over the crossing rises a dome 262.5 ft. high; above the chapels in the angles of the cross arms rise four smaller subordinate domes. In the plan and the architectural treatment, the southern France Romanesque style here celebrates a magnificent resurrection, as it had been particularly developed in the domed churches of Aquitaine. (Volume 2, pages 13, 44). Suggestions from the Romanesque style may also be recognized in Palace Trocadero, erected for the World's Exhibition of 1878 by Gabriel Davoud (1823-1881),

and Jules Desire Bourdais (born 1835). The principal building projects between to square towers in a great semicircle with colossal arched windows between buttresses, toward the bank of the Seine, surrounded by an open two-story round-arched coggia. Freely developed from the requirements with an assured feeling for the effect of the masses, the design is executed in a plain combination of bricks and cut stone, and it should still be taken as a model for similar structures. Davioud had later introduced the Barocco style of Louis XIV on his frequently imitated Theatre du Chatelet on Place Chatelet in Paris. Otherwise the architecture of the republic remained in an enterprising spirit, evidently behing that of the preceding second empire. Among the later architects Leon Ginain (1828-1898), a pupil of Labrouste, and Paul Sedille (1836-1900) made a name, Ginain with the church of Notre Dame des Champs and the rich palace (Museum) of the duchess of Galliera; Sedille with his showy structures for the World's Exhibitions of 1878 and 1889, and the great Magasin du Printemps (department store) (1881), on which iron construction enters into a fortunate combination with stone. An entirely novel type of structure was erected by Gustave Eiffel (born 1843) in the well known Eiffel Tower for the World's Exhibition of 1889, 984.3 ft. high and entirely constructed of wrought iron. This colossal iron framework merits our recognition on account of its originality, consistent form and construction, and also a certain beauty is peculiar to it, yet a grand monumental effect can scarcely be attributed to it. Yet the Eiffel tower gave a powerful impulse to the endeavor for a new and "rational" style, independent of historical forms. But the leadership in the movement with this aim, and already powerfully aroused at the beginning of the nineties and extending over the entire West, was then taken by German architecture.

3. England.

The freedom of English architecture from the fetters of Hellenistic Neo-Classicism was secured in the second quarter of the 19 th century. Indeed a series of important architects remained faithful to the antique ideal of art; they sought by suitable transformations and greater adaptation to modern architectural requirements, to retain for this its previous impor-

importance. But the Renaissance introduced by them could not advance against the strong mediaeval current. The greater harmony of the Gothic architectural monuments with their natural surroundings, their self-evident structural principles, opposition to the entirely decayed Classicism, and not least the German nature expressed in Gothic art, gave to its adherents a successful power of conviction and a great superiority over the Renaissance.

The Neo-Gothic required a longer period of development to reach its climax. Men began unconsciously with the most striking motives, according to a well known general principle repeated in our previous statements, which were offered by the latest Gothic of the Perpendicular style (volume 2, pages 111, 113); then in the evolution they went further back to the early Gothic, and from this slowly forward again until the Perpendicular style was reached, which as in the Elisabethan and Jacobean time (volume 2, page 327) was finally mixed with the forms of the Renaissance. In the first stage of the Neo-Gothic style frequently resulted a direct of still Classicistic structural framework in a Gothic exterior. That also entire mediaeval plans were imitated need not cause surprise. * Gradually under the influence of several important literary publications on mediaeval architecture was built up a deeper understanding of the Gothic architectural organism. Among these publications those of Augustus Pugin (1762-1832) and of his son Augustus Welby Pugin (1813-1852) take the most important place. The younger Pugin (page 312) became the actual path-breaker of the English Neo-Gothic. He commended the Gothic style as not only the sole one available for church architecture, but also that most suitable and dignified for secular architecture.

* James Wyatt (1748-1818) erected about 1807 in Salisbury the chateau of Fonthill Abbey in the form of the plan of a Gothic monastery. It thereby found such approval, that a great number of noblemen's seats were built in the same style.

After the middle of the 19th century the aims and the style tendencies became clarified. The Romantic movement had previously introduced a mighty religious exaltation as a reaction against the rationalism of the preceding century, representing reason in religious opinions. The consequence thereof was a

close approximation to Catholicism, which even led to the adoption of a solemn altar service and of processions. * Under the high church feeling of the time, church architecture made an unusual advance. But also to secular architecture was devoted public interest in increased measure, after the grandly intellectual John Ruskin (1819-1900) in his writings on the formative arts, with unsurpassed eloquence had treated the meaning of architecture, its nature and its aims. Ruskin unlike Pugin, did not see in the English late Gothic the only saving art; he was also enthusiastic for French and Italian models, particularly for the rich splendor of the marble incrustations and mosaics of Venetian buildings, indeed chiefly on account of their poetic harmony and picturesque charms, for which Ruskin first spoke. He was a zealous champion of all hand wrought and personally treated art, free from transfers like patterns. Thus Ruskin on the one hand opened to English architects views of the architecture of foreign lands, whose forms brought enrichment to them, and participated in their problems, even in competitions; on the other hand he aroused in them a particular esteem for genuineness of materials, solidity and visibility of the construction, and the correctness, simplicity and naturalness of the architectural and ornamental treatment.

** The influential younger Pugin passed over to Catholicism in his religious enthusiasm.*

Favored by the economical improvement occurring after the sixties, English architecture now took on a free development, independent from foreign countries. Church architecture for the reasons previously mentioned adhered to the altar service and the form of plan of the mediaeval works intended for solemn processions. For the small and often truly picturesque parish churches, the buildings designed by Pugin became typical. He preferred the three or two aisled basilican plan without galleries, with a deep rectangular choir, visible framework of the roof, a front tower on the longitudinal axis, and with entrance by a side porch. The Protestants were disinclined to the ritual solemnity and firmly adhered to their strict conceptions -- these were chiefly the sects of Calvinistic Presbyterians, Congregationalists (Independents), Baptists and Methodists-- also expressed their opposition in their religious

buildings. They erected houses for preaching with exclusive regard to the greatest possible number of seats in an arrangement, such that from each seat one could properly see and hear the preacher. Around the great audience rooms were grouped other rooms for use by the community; a smaller assembly hall, perhaps also a school room, a reading room, library, smaller rooms for the clergy and the administration, and in more extended plans even a gymnasium, concert hall, conversation hall and the like. The possibility of connecting rooms by the installation of sliding partitions was from the first taken into consideration. For the construction was chiefly employed Gothic, but also Renaissance, occasionally also Barocco, and not seldom purely structural forms.

In secular architecture English architecture differs from that of the continent substantially only by the freer handling of historical forms of styles. Innovations, such as the introduction of iron as a structural material might have caused, changed the structural framework but little. But these appeared so much the more in the great city business structures. This entirely freed itself from tradition and constructed the walls enclosing the rooms and their openings exclusively according to the requirements of the business. (Figs. 292, 349). English architecture preceded that of the continent in this. Still more was this the case in house architecture. The expressed domestic sense of the Englishman, who even in modest conditions strives to own his own home, the generally great prosperity of the citizen class, and the enjoyment developed through many generations, of a certain pure domestic comfort has led here for centuries to a high domestic culture. This indeed in the residences of the class of owners, during the supremacy of Palladianism and of Neo-Classicism, caused many sacrifices in the arrangement of the ground plan and in the structure for the benefit of the external architectural treatment. But in the architecture of the citizens, which was less affected by the changes in the grand architecture, these were expressed the more clearly. To them was devoted the attention of the house architects, after the requirement to build in "full style" in the former classicistic sense was set aside, and men had broken out a path for an appropriate, genuine and comfort-

comfortable, and thus a "habitable" mode of building. The advantages of the plain citizen's houses were then recognized, that had remained in great number, particularly from the reign of queen Anne (1702-1714). * In their picturesque arrangement in the green of the garden, in its structure developed only with regard to the requirements of space and light, with the cosy and inviting bay windows between the red brick walls, the connected rows of windows, the plain white window enclosures, the shadows of the projections of the roof, and the massive chimneys, these arouse the highest admiration. In reference to them the English architects after 1860 developed the modern type of the house for a single family. They gave it a very free arrangement of the ground plan. On the very modest exterior is strongly emphasized the rural character in the structural material and the treatment of details. The charm of these buildings substantially consists in, that in their entire appearance they express the suitability, comfort and truth of the internal arrangement. (Fig. 289). Likewise in the interior decoration the reform aimed at simplicity, propriety, genuine materials and workmanship, finally under the lead of the celebrated William Morris (1834-1896) extended to all art industry. By him English architecture acquired a determining influence on the entire domestic architecture of the continent. Indeed on the buildings also erected by the extensive contractors in English cities for rental, a lack of taste appeared just as on the continent. But the tasteful general appearance presented by the architecture of England in the second half of the 19th century was but immaterially influenced.

** To this citizens' style of architecture has been given the name of Queen Anne style, but it must not be overlooked here, that the queen herself caused all the larger public buildings to be erected in the Palladian style. (Page 201).*

The greatest English architect in the first half of the 19th century, Sir Charles Barry (1795-1860), was an artist nature allied in spirit to the German master Semper by his power in monumental treatment. Already in the thirties he left the monotonous Hellenism for the introduction of the Italian high Renaissance. His Traveler's Club House erected in 1830-1832, on which is visible the influence of palace Pandolphini, and

the facade of the Reform Club House (1837), influenced by the palace Farnese in Rome, are the earliest London buildings of the Neo-Renaissance. Its first representative also became the greatest Gothicism of his time. It was in great part to be ascribed to the influence of Pugin, that Barry's most important creation, the famous Parliament House in London (completed 1852) and erected on the bank of the Thames, was built in the Gothic style. Barry proved himself a master in this, who dominated the prescribed mediaeval series of forms with astonishing certainty, but also in free creation sought new forms of treatment. The design arranged in a clear ground plan in colossal dimensions is grouped unusually well, in general with a grand and monumental effect, (Fig. 290), and in details possesses the highest artistic charm (Fig. 291), in spite of a certain monotony produced by the strict employment of the perpendicular style with continual repetition of tracery and of the same form of windows. Equally stately in the smallest details is the effect of the interior executed in the same style, even if in regard to symmetry, the often excessively large halls and rooms partly suffer under an overloading with architectural and decorative forms. W. Pugin also took part in the treatment. His thorough acquaintance with the mediaeval conception of art and world of form, and the depth of his invention are expressed in a purity of style, that accurately produces the impression of genuineness.

A freer tendency, particularly drawing from French Gothic sources, was followed by George Edmund Street (1824-1881), Barry's pupil, on his churches and his most important secular building, the law courts in London (1867-1882), on which he made great sacrifices to the picturesque effect of certain motives, particularly the small round angle turrets, the triforiums and the grouped windows. Infinitely more severely proceeded (in George Gilbert Scott (1811-1878), England's most important early Gothicism and church architect of the 19th century. He was the restorer of the cathedrals at Ely, Hereford, Exeter, Lichfield, and the Westminster Abbey church in London (Volume 2), and the builder of the great cathedral in Edinburgh, a three aisled cross basilica, as well as of the church of

S. John at Torquay, on which under Ruskin's influence he combined brick with marble after the Italian style. In the general competition for the rebuilding of the church of S. Nicolai in Hamburg, burned in 1842, he obtained the victory; this church was erected in 1846-1863 after his plans. William Butterfield (1814-1900) gave a variegated animation of the surfaces by colored tiles and stone slabs to his buildings, among which the church of All Saints in Margaret St., London (1849-1859), first erected strictly in accordance with high church requirements, and Keble College at Oxford, were much esteemed. John L. Pearson (1816-1897) sought rather to produce an earnest church harmony and antique effect by simplicity and purity of style. He employed brickwork without stucco and introduced vaulting instead of the previously visible framework of the roof, or of the ceiling sheathed in tunnel form. His most important works are Trinity church at Westminster (after 1850), entirely following old English models, the great five aisled church of S. Augustine in Kilburn in London (1871-1880) and the grand cathedral at Truro begun in 1880.

Since the eighties the more important church architects passed from early Gothic to high Gothic and the Perpendicular style. At the same time became apparent an increasing attention to the audience room proper. John Sedding (1837-1892) gave a wide aisle to the Trinity church in Sloane St, and on the contrary arranged the side aisles as merely narrow corridors. * He proceeded with greater freedom in the historical forms. His gifted pupil H. Wilson followed him in the way pointed out, but went farther in the capricious employment of historical forms. His picturesque church of S. Mark at Brithdir may also be regarded as a modern work. An exceptional position in English church architecture was taken by Westminster cathedral (R.C.) in London, erected since 1895 by John F. Bentley (1839-1902) for Catholicism, elevated to new power. It was erected in brick masonry as a combination of the old Basilica of Constantine with the central building of S. Sophia (volume 1, pages 139, 154), in Early Christian-Byzantine forms, but which were personally conceived and worked over. Both the interior, magnificently decorated by the rich marble incrustations and mosaics, and the external view dominated by a square tower wi-

282.2 ft. high, produce an earnest, elevated and solemn impression. The Gothic style passes in England as specifically Protestant; therefore Catholicism preferably returns to the Renaissance in its churches. Among the churches of the sects (page 344), the Congregational church in Duke St. in London, built by Alfred Waterhouse (1830-1905) takes a prominent place. It is a great building for the congregation with an audience room like a concert hall and a massive principal tower in Romanesque forms. Waterhouse also appeared in secular architecture with important works. The Town Hall at Manchester (after 1869) with a square principal tower on the middle axis of the facade and the grand Natural History Museum in London (1873-1880), with facades faced with terra cotta slabs and adorned by charming terra cotta ornaments, both kept in the late Romanesque style, permit him to be recognized as an important and monumentally designing internal artist. The Union church in Brighton by John W. Simpson in the latest time is a central structure with square middle room, adjoined by three apses with galleries and half domes. The external architecture is clothed entirely in the forms of a rich Barocco style in the mean between the Italian and the French conceptions. With its mighty dome and the two towers of the facade it produces an imposing impression.

* Compare on page 324 the form of the plan of the church of S. Thomas in Berlin.

3. In opposition to the Neo-romantic, that almost entirely dominated the church architecture, the Italian Renaissance introduced by Sir Charles Barry maintained an assured position in secular architecture. After Barry the much employed Sir James Pennethorne (1801-1871) passes for its chief representative. The University in London, built after his design and completed in 1869 by Tite, in spite of its rich architectural expedients, in general only bears the stamp of a weak, characterless, and frequently inorganic combination of Italian Renaissance motives. More tasteful is Th. E. Colcutt (born 1840), who again turned to the English Renaissance in his works, among which the Imperial Institute in London (1887-1893) is the most important, but also exhibits a certain inclination to rich forms and ornamental decoration.

A great and freely creating impulse arose in English architecture in Richard Norman Shaw (born 1831). He began with Gothic, but soon took up Renaissance and even Barocco motives, which he employed with the highest artistic freedom. He exercised an unusually fertile activity, first in church architecture, but then exclusively in secular architecture, which he led into new paths. His ground plans are regarded as models. In the architectural treatment he showed himself an adherent of a simple citizen's architectural style, controlled first by considerations of suitability. He brought brickwork again into use. By its preparation with the chisel and carving tool in the mode already practised by Islam (volume 1, page 208), he produced charming ornamental decorations. By the New Zealand Chambers in Leadenhall St. in London begun in 1872, he gave to the modern business building an architectural form suitable for the time. To introduce abundant light into the rooms, the walls are there resolved into piers, between which the windows project like bay windows. (Fig. 292). Shaw allowed the piers to intersect the great cavetto of the roof cornice without further mediation. In this manner he produced a monumental and picturesque effect. The Head Police Station in London, Shaw kept in a Dutch-English Renaissance. He disposed with entire freedom of the small houses for a single family, of which the most famous are those of the Villa Colony of Bedford Park near London. In a similar tendency labored Ernest George & Peto on their houses in Collingham Gardens in London (Fig. 293), erected in 1887, where indeed historical style forms were employed in more abundant measure. The public buildings, which naturally afforded less opportunity for novel treatment, also in the last quarter of the 19th century still manifest a closer adherence to traditions. The Courts of Justice at Birmingham, erected by Aston Webb and Ingress Bell in 1887-1891, is a dignified brick structure with rich terra cotta ornament in the forms of the early English Renaissance. A somewhat more mature stage of the early Renaissance is represented by Henry T. Hare in his City Hall at Oxford, attractive by its personally freer conception. On the Britannia Royal Naval College in Dartmouth erected by Webb, and the Royal College of Science in London, as well as on the City Halls at Sheffield and Batters-

Battersea, which have the architect E. Mountford as their creator, the English high and late Renaissance appear with a Barocco strain. Entirely new, and entirely freed from all conventionality, means of architectural expression were employed by 351 G. Harrison Townsend in his Gallery of Paintings at Whitechapel in London, and the Horniman Museum there. He belongs to the path-breakers of the modern tendency in architecture.

4. Italy and Spain.

In ITALY after a long period of repose, architecture made an unusual advance after the erection of the kingdom. (1861). The energy of the young kingdom first of all expressed itself in the energetic spirit of the larger cities. These competed with each other in the remodeling and beautifying of their plans and the erection of impressive buildings. Yet the art of Italy, that in the period of the Renaissance and the Barocco styles had exerted a determining influence upon all European art, never again in the 19th century attained a leading importance. It remained inferior to those of Germany, France and England, and frequently adopted suggestions from those countries. As there, so in Italy the Neo-Classicism was replaced by Eclecticism.

The centre of gravity of the architectural activity occurred in north Italy. In Milan Carlo Maciacchini (1818-1891) designed the monumental Camposanto (after 1865) with nobly treated buildings and porticos in the forms of the early Renaissance of upper Italy. At the same time Giuseppe Mengoni (1820-1877) began the grand gallery of Victor Emanuel (1865-1877) as an intersection of two stately streets 47.6 ft. wide and respectively 639.7 and 344.5 ft. long. (Fig. 294). In the architecture of the facade resembling a triumphal arch and the internal facades, the forms of the Italian early and high Renaissance are employed beside each other. This gallery is the most important secular building of modern Italy. Giuseppe Balzaretti (1801-1874) selected for the Savings Bank (Cassa di Risparmio) built by him in 1871 the rusticated architecture of the Florentine Renaissance palaces Strozzi and Riccardi (volume 2, Figs. 209, 246); Giacomo Franco for the church at Lonigo (1878) the basilican style of the early mediaeval churches of the 11th

century, permeated by northern Romanesque motives. The two celebrated writers on art, Camillo Boito (born 1836) and Luca Beltrami (born 1855), likewise appeared with notable architectural creations, the former among others with the principally Venetian Gothic Musicians' Home, the latter chiefly with the stately building of the well known journal *Corriere della Sera*, subdivided by broad Tuscan pilasters between the great windows. To the recent tendency belongs the palace Castiglione erected by Giuseppe Somarugi, which is manifestly influenced by the Wagner school in Vienna.

For Florence the restoration and completion of the cathedral (volume 2, page 136) occupied the chief interest of the architects. Emilio de Fabris (1808-1883) erected the newly constructed Gothic marble facade in harmony with the campanile beside it in a masterly way. Thereby he found so much approval, that his bust was placed in the cathedral beside that of the first cathedral architect, Arnolfo di Cambio (volume 2, page 136). The Neo-Renaissance is represented by the charming Villa Lazzei of Giuseppe Boccini (1840-1901) in a stately classical example, combining the art style of Raphael with that of Balladio.

Rome first introduced a rich architectural activity in the eighties. This was dominated by the high and late Renaissance. As the most prominent work is regarded the Palace of Justice by Guglielmo Calderini (born 1845), erected after 1888 in a predominating Palladian style on a rectangle 557.8 x 465.7 ft., and further the Art Exhibition Building by Pio Piacentini (born 1846), strongly influenced by the Fountain of Trevi, and the dignified Bank d'Italia by Gaetano Koch, subdivided by three-quarter columns in both upper stories. But the great National Monument for Victor Emanuel in Rome, designed by count Giuseppe Sacconi (1855-1906), and only erected in the latest time, returns to a severe Classicism in its Corinthian porticos enthroned above a massive substructure.

Naples received through Ernesto di Mauro its Gallery Umberto (1887-1891), which however does not equal in effect its model, the Milanese Gallery. On the other hand the new University by Pietro Paolo Quaglia (died 1898) is a monumental work in a modern late Renaissance style. In Palermo Giov. Batt. Filippo

Bariles (1825-2891) erected in the Theatre Massimo, which was completed by his son Ernesto Bariles (1897), one of the best arranged, largest and most magnificent theatres of the world. In the international competition for obtaining plans for this building, Semper also participated as the judge of awards.

In SPAIN the Neo-Romantic style set in with the restoration of mediaeval churches. In the church di Nuestra Senora de Al-ocha at Madrid, which was erected in place of the church standing there and torn down (after 1890), appeared a Neo-Romantic structure. The restoration of the Alhambra (volume 1, page 2219) also gave an impulse to the adoption of the Moorish style. The amphitheatre for bull-fights at Madrid, erected in 1873-1874 by Emilio Rodriguez Ayuso (born 1845) and Alvarez Capras, is in general kept within Moorish forms. Yet in general a late Renaissance predominates, already standing on the stage of transition to the Barocco style. It is represented by a splendid example in the Bank Hispano-Americano Building at Madrid, erected in 1884-1891 by Eduardo de Adaro (died 1906) in connection with Severiano de la Lastra. On the contrary the imposing Bourse at Madrid, that had the architect Enrique Maria Repulles as its creator, with hexastyle Dorinthian portico and pediment, in its entire treatment appears as a belated production of Neo-Classistic architecture.

5. Netherlands and Scandinavia.

After BELGIUM had separated from Holland and had been elevated to be an independent state (1830), under the wise government of its king Leopold I (1831-1865), to whom was largely due the intellectual and material development of the country, it entered on a splendid period, that had as a result an extremely rich and grand architectural activity. This at first continued in close adherence to French art, as in the Classistic epoch, and particularly as far as the Romantic tendency appeared. In the course of the seventies, the Belgian architects sought an art corresponding to their people by a return to the native Renaissance, and about the end of the century and earlier than in other lands, they passed over to entire freedom from all historical styles.

The first work of the Neo-Romantic style was executed by T. Fr. Suys the Elder (page 300), known to us as a classicist, in

the church of S. George at Antwerp (1848-1853), conceived in a still timid Gothic style. As an infinitely more mature creation appears the spacious and picturesque central building of the church of S. Maria at Brüssels-Schaerbeek, which was erected in 1844-1850 after the plans of Louis Overstraeten (died 1849). The architecture of the lower parts of the building still remains in the Romanesque forms, but chiefly for structural reasons passes into an early Gothic in the dome. (Fig. 295). Joseph Louis Schaede (1818-1894) transferred the Gothic to secular architecture on the Bourse at Antwerp, erected anew by him in 1868-1872, whose vast hall he furnished with an iron roof framework of wide span, and on the rebuilding of the railway station at Bruges, undertaken in 1877. In adherence to Viollet-le-Duc was developed a school of architecture in Belgium, which with refined understanding executed the restoration of mediaeval buildings, also erected those of the picturesque marketplace in Brussels, and a great number of church and secular structures scattered over the entire country. Even the chief Belgian masters of this time, Poelaert and Beyeart (see below) were occasionally employed as Gothicists, particularly in church architecture.

But on the whole in Belgian architecture, the Neo-Romantic remained behind the Renaissance in influence and importance in the history of art. Suys the Elder had introduced the Renaissance with his still rather Classicistic church of S. Joseph at Brussels (about 1849). On the new Bourse at Brussels (Fig. 296) erected by his son Leon Suys (1824-1887) in the years 1868-1875, the French high Renaissance appears in sharp development in evident competition with Garnier's Opera House. The principal work of modern Belgian architecture is the Palace of Justice at Brussels (1866-1883) by Joseph Poelaert (1816-1879). This building was erected on a ground area of 590.6×557.8 ft. at a cost of ten million dollars, and it exhibits the forms of an extremely massive Roman or late Renaissance, in which appear Egyptian, Persian, and even Assyrian motives in the terraced ascending architectural masses. In spite of the not completely organic architecture, the general appearance is overpoweringly grand. In the interior the statuary of the vestibule (Fig. 297) and the great waiting hall, whose dome rises to a

height of 318.3 ft., are architecturally the most important rooms. In Antwerp W. Dens built the Flemish theatre in 1869-1872 in a noble French-Flemish high Renaissance; Louis Baeckelman the Palace of Justice (1871-1875) in the style of the early French Barocco architecture. The gifted and learned Henri Geyaert (1823-1894) erected the National Bank in Brussels in a style still based on the French high Renaissance, but also employing Barocco and Louis XVI motives, then passing into the national Flemish Renaissance, in which he built the Belgian Bank on the Central boulevard at Brussels and the railway station at Tournay. In this tendency there followed him the much employed J. J. von Ysendyck (1835-1911), also known as a writer on art by his book on old Belgian buildings, in whose picturesque city halls of Schaerbeek and of Anderlecht, the native Renaissance attained new life. The leading Belgian master of the most recent time, Henri van de Velde (born 1863, now Director of the School of Art Industries at Weimar), and Victor Horta already belong to the series of modern artists.

HOLLAND again adopted about 1850 its ancient native brick architecture with bands and members of cut stone, both on a mediaeval basis as well as in the forms of the Renaissance of the 16th and 17th centuries. The chief representative of Neo-Romantic tendency was Peter Cuypers (born 1827). He was the builder of a great number of churches, among them being the Herz Jeus church in Amsterdam and S. Jacobus' church at the Hague, that are both executed in the early Gothic style. He obtained high favor by his most important secular building, the Royal Museum in Amsterdam (1877-1885), in whose imposing external architecture the late Romanesque forms are permeated by Renaissance motives. (Fig. 298). The same style was given by Cuypers to the main railway station in Amsterdam, completed in 1889. For the revival of the national Renaissance labored Gugel, influential through his position as professor at the Polytechnic school at Delft. His University at Utrecht (completed 1894) is a picturesque work in his early style. Somewhat more personally concerned and more animated by Gothic forms of arches appears the same on the charming railway station at Groningen, built by J. Gosschalk. The University there is a work of the Royal architect Vryman and adheres more closely to the

native art of the 17th century.

Likewise in Holland at an early date prevailed the pressure toward an entirely free treatment completely independent from traditions. The new Protestant church in the Hague built by J. Verheul, already in the subdivision of the masses, in the aim for effect of the surfaces, and in the architectural treatment already passes over to the modern style. Entirely in this course worked Hendrick Petrus Berlage (born 1856), whose works, like the earnest brick architecture of the New Bourse in Amsterdam, in the general effect and treatment bear a character visible at the first glance, still reflecting the native Romanesque.

327 In DENMARK, where Classicism had struck such deep roots and had already exhibited such rich fruits (page 302), the Neo-Romantic movement could but slowly find a firm footing. Yet two larger Romanesque church buildings are to be mentioned, the church at Holbak by Christian Hansen (page 303) and the church of Jesus at Copenhagen by J. Vilhelm Dahlerup (born 1836). Likewise in secular architecture the Neo-romantic is represented by the University Library in Copenhagen by Joh. Dan. Herholdt (born 1818), built in Lombard-Romanesque forms with the addition of iron construction. Otherwise the Renaissance predominates in the field. Dahlerup with Ove Petersen (born 1830) erected the Royal theatre in Copenhagen (1872-1874) in the Palladian style. Also the Ny Carlsberg Glyptothek in Copenhagen (1891-1897), designed in 1888 by the first alone, with finely designed internal decoration bearing a Palladian stamp. But Martin Nyrop in his new city hall at Copenhagen (1892-1903; Fig. 299) returned to the native brick architecture influenced by the Netherlandish-German Renaissance (volume 2, page 317), to which he gave new life by original motives handled in the modern manner.

NORWAY received the first building of the Neo-Romantic tendency in the church of the Trinity at Christiania. It was erected in 1853-1858 after the design of the Hamburg architect A. de Chateauneuf as a Gothic central building on an octagon with four short cross arms and a dome. More closely to the national style of architecture adheres E. Norgreen's church at Bragernæs-Drammen (1868-1871), a three aisled basilican structure

with choir, internal wooden supports, horizontal wooden ceiling and external stone construction in a Gothic recalling the German Hanoverian school. The heavy church of S. Johann at Christiana erected by George Bull in 1878 expresses a north German basis. The Renaissance was introduced by the German architect Heinrich Ernst Schirmer in the Art Museum in Christiana built in 1879-1885. Henrik Bull created the National theatre there (completed 1899) in a peculiar and purely personal expression of form, not happy in all points. The endeavors of the younger Norwegian architects to bring into honor again the wooden style of architecture, so well adapted to the climate, are to be designated as very pleasing. H. Munthe gave a magnificent example of this, worthy of imitation, in the native Holmenkollen hotel near Christiana.

SWEDEN received by the National Museum at Stockholm built by F. A. Stüler (page 285) its first architectural monument of the Neo-Renaissance, recalling rich Venetian models. After him a series of Swedish architects worked in a purely eclectic manner, not without a certain endeavor to cause recognition of a personal estimation of historical forms. Emil Langlet (1824-1898) became known to a wide circle by the erection of a great number of entirely central churches arranged according to the requirements of Protestant worship. Isak Gustav Clason (born 1858) was the creator of important residences, erected in different historical styles, among which may be mentioned the palace of count Rosen in the Barocco style (1898), and the palace of count Hallwyl (1899), approaching in the detail forms to a Venetian late Gothic, both in Stockholm. Carl Möller erected the stately church of S. Johann there as an early Gothic cross basilica with high facade tower. The principal work of Swedish architecture in the second half of the 19th century is the group of buildings of the Legislative palace and the Reichs' Bank, built near the Royal palace and dominated by a great square dome (about 1900). It was executed by Aron Johansson in a showy and very luxuriant French late Renaissance. Erik Lallerstedt, the creator of the church of S. Peter at Stockholm, entirely differing from the conventional form, and Ferdinand Bobor (born 1860), the builder of the city electric station there, which by its novel treatment and particularly by its

mighty arched portal arouses attention, are the Swedish path-breakers for modern art.

6. Eastern Europe, America and the Colonies.

The great movement proceeding from western Europe with the aim of reviving the architecture of the middle ages and of the Renaissance extended its waves also beyond the eastern frontiers of Germany and of Austria. In the western provinces of Russia, principally dependent on German intellectual life, in Poland, the Baltic provinces and in Finland, architecture took a development similar to that in Germany. The Neo-Classicism after the middle of the 19th century was followed by the Neo-Romantic and Neo-Renaissance.

In Poland, Cracow formed the centre of the art life. There Feliks Ksiezarski (1820-1884) erected the university in a tasteless Gothic; Franz Macynski the Art palace in freely selected forms of the high and late Renaissance. In Riga originated the Gertrude church (1867), the Catholic Franziskus church (1892), and a great number of secular buildings in the Neo-Gothic style, the Bourse built in 1855 after the designs of Ha von Bosse in Venetian, and palace Ritterhaus (1866) in Florentine Renaissance. In Helsingfors the Renaissance is represented by palace Ritterhaus (1858), the Gothic by the new Lutheran church (1893). The later generation of architects in the Finnish capital, under the leadership of A. Lindgren, H. Gesellius and E. Saarunen, who together erected the weighty buildings of the Fire Insurance Co. Polijola in Helsingfors, and to whom adhered other pupils of the Polytechnic school there, labored energetically in the modern endeavor to obtain entirely independent modern style forms.

In Russia in the capitals of St. Petersburg and of Moscow, the Renaissance current coming from the West in the first half of the 19th century caused an approximation of Classicistic architecture to the Italian Renaissance, but from the Neo-Romantic a return to the ancient Russian art (volume 1, pages 198, 202). This was at first connected with Italian or mediaeval forms from the West, but later became ever more decided and severe. The vast palace in the Kremlin in Moscow built by Constantin A. Thon (1794-1881) in 1839-1844 still stands on the

stage of the transition from Classicism to Italian Renaissance. On the church of the Annunciation at S. Petersburg attributed to the same master, which is crowned by five towers rising like pyramids, Russian forms are balanced by Italian; on the church of S. Catherine of the Wosnessenski Monastery at Moscow are Russian forms with Gothic. The grand church of the Redeemer at Moscow erected by Thon and Resanow in truly Russian magnificence already exhibits the Russian style in its purity. Yet more strongly are its peculiarities exhibited on the church of the Kiew Lawra (1898) at S. Petersburg, and on the Expiation church in the summer garden there, even surpassing these. Of the more important later secular buildings, the magnificent Commercial Row at Moscow (1888-1893) created by Pomeranzew even exhibits a certain clarification of the Russian style by R Romanesque and early Renaissance forms. But on the palace of the Duma erected by Tschitschugow and on the New Historical Museum of Sherwood at Moscow, it is employed without restraint.

Into AMERICA the Neo-Romantic movement already found entrance before the middle of the 19 th century. In New York was erected in 1839-1846 Trinity Church in a very restrained style, but in 1850-1879 the cathedral of S. Patrick (by James Renwick) was built in a more mature Gothic. Likewise the Italian Renaissance is employed in the Library of Congress at Washington (188-1897), the Grecian, i.e., a Renaissance strongly approximating to Hellenism, on the Corcoran Gallery in Washington erected 1894-1897 by Ernest Flagg.

361 The amazing advance of the North American States after the civil war (1861-1865) led to a rich and independent development of North American art. An entirely fruitful field of work was afforded to architects in the commercial buildings, banks, structures for the great journals, hotels and not least in the residences, for the comfort and treatment of which in accordance with their own inclinations and customs, the well to do Americans retained a high estimation in the haste and lack of repose in their lives. Grandeur and model arrangement are exhibited by such buildings. The vast acquisitions in construction led to startling undertakings, which celebrated real triumphs, not only in the cowering of colossal halls, but also in the "skyscrapers" rising to dizzy heights for the purpose of

the extreme utilization of the building site. But the American architects not only master the architectural problems of planning and construction; they also give to their works since the last year of the 19th century a peculiar and independent stamp corresponding to the architectural treatment. H. H. Richardson (born 1839 in New Orleans), educated at the Ecole des Beaux Arts in Paris, from 1866 an architect in New York, became a path-breaker of the new American architecture. In his Trinity church in Boston built about 1875, he returned to the Romanesque style of southern France and of Spain (volume 2, page 44; Fig. 60), and imparted to it a powerful Anglo-Saxon-American virility. This church forms a landmark in the history of American architecture. On a great number of other public and private buildings by Richardson, the style introduced by him came into full development. He had already acquired a position determinative for the general appearance of modern American architecture. It is characterized on the exterior by an architectural grouping emphasizing the purpose almost recklessly, by a great preference for round-arched openings, but especially by heavy rustication appearing everywhere as a leading motive and sometimes developed in Cyclopean massiveness. In general he exhibits great economy in properly architectural subdivisions and architectural motives; where such are employed, they always adhere to the Germanic-Romanesque world of form.

3. To the commercial buildings is peculiar a certain upward tendency; besides mediaeval motives they also accept those of the Renaissance, but always in a free and powerful treatment. (Fig. 300). The isolated country houses chiefly exhibit broad comfort. The American wooden construction also again comes into use on them. He produced in numerous villas an extremely harmonious relation of the architectural appearance to nature. The internal treatment follows the same principles, as were developed in the later English house. (Page 346).

The architecture of the colonies is entirely subordinate to that of the state, to which they are subject. Occasionally in the domains of the old civilized lands concessions are made to the racial architecture, even if with varying results. But the public buildings serving for assemblages scarcely differ in their style treatment from those of the mother country.

(Fig. 301). The opening of the protected domains to European civilization even compelled the transplanting of European art to the foreign soil. It then follows, even if at some distance, in its entire further course during the whole political and intellectual dependence on the art of the mother country.

IV. Architecture of the Present Time.

363

1. General Basis.

About the end of the 19 th century appeared in increasing strength movements for reform in the domains of art, that soon led to a general movement in the sense of a direct opposition to the former artistic opinions. They are the result of that powerful transformation in the intellectual life of the peoples of central Europe, which had been prepared for in the literature during several decades. After the end of the fifties, new ideas, new problems for the world's opinions, commenced to powerfully influence the severely historical tendency of the literature. Schopenhauer's philosophy, particularly his work, "Die Welt als Wille und Verstellung", at this time made its way with elemental force in the widest circles of the cultured. Soon afterward followed Nietzsche with his theory of the utmost possible elevation of the "I" and of the will to power, of the master's rights of the superman. In France appeared Zola with a magnificent exposition of his ideas in the service of the social problems. Similar tones sounded from Norway in Ibsen's dramas, and in a particularly clear manner from Russia in Tolstoi's works. In the reckless and egotistic forward pressure of the intellects possessed by the new ideas, in the struggle for freedom from all fetters, in the denial of tradition and of opposition to the authority previously enforced, there burned a hot contest of minds. It occurred at a time, in which basis-destroying transformations were completed in all scientific, technical and social domains, and the feeling of elevation above all former opinions filled in great measure science and technics. Ever stronger resounded the call, in literature as well as in the formative arts, to set out new in place of the old trees to be felled. It was realism with its mode of thought, chiefly creative from reality and actual observation, and naturalism in close alliance with it, and the employment required by it, of the sciences and arts, not in accordance with formal rules, but on a natural basis, which in the contest of opinions gradually won the victory over idealism. In the formative arts this realistic and naturalistic intellectual tendency appeared with a definiteness and sharpness, as h

had scarcely ever been the case. It was earliest expressed in painting and sculpture. In France Millet and Monet had broken the path for it in painting, and Meunier in sculpture; in Germany a host of artists of high purpose went the same way. In architecture, that by its entire nature required a longer time for obtaining new forms of expression, the new spirit appeared later. But it then expressed itself with greater decision, than in the two sister arts. Already for some decades changes in the problems, in the external conditions and requirements of architecture had prepared the soil for it, and so changed the basis for its development, that it already of itself pressed forward to leave the track already retained.

The most important scenes of architectural activity, the cities, in the last quarter of the 19th century, had changed their entire architectural appearance. The reasons and the impelling forces for this lay in the fabulous advance in the industries and of the commerce developing parallel with them, as well as in the very influential transformations of the social conditions of our own time. The continued and increasing travel made the building of vast railway stations with colossal halls, great post offices and grand hotels, designed for hundreds of travelers, an unavoidable necessity. The plans for industrial purposes frequently extended over entire quarters of the city and gave to these a peculiar stamp. The central stations for light, water and power, to be erected in the midst of cities, already assumed modern forms on account of their places in the view of the city. The buildings for commerce, the exchanges and the banks required a treatment expressing their importance in the business world. Entirely novel problems in the treatment of interiors were proposed by the great warehouses and market halls of all kinds. The strong centralization of the masses of the people in the cities and the social conditions required buildings for vast assemblages of men and for their amusement and refreshment, such as society halls, concert halls, restaurants, cafes and the like; the satisfaction of the needs of education, extremely increased and in the largest classes, school houses of all kinds in quite enormous dimensions and with the best hygienic appointments. To these are still further added the likewise gradually becoming colossal

buildings for state and communal administrations for the public and the common benefit. In comparison with these architectural problems of churches, the chateaus and palaces, which previously formed the centre of gravity of architectural creation, pass into the background. It lies in the social and democratic spirit of our time, that the interest of the architects should now be devoted to the citizen's residence in a previously unknown measure.

35 The new problems of themselves led to new methods for their solution. The materialistic mode of thought, strongly promoted by industrialism and egoism pressed for an extreme utilization of space, time and technical means. The relation of support and load, as chiefly developed in the antique and the Renaissance, which had dominated architecture for centuries, lost its importance. The modern reinforced concrete construction made possible an extreme increase in the strength of the supports and a previously impossible increase in the weight of ceilings, so that men could advance to the widest spans of interiors. It brought a new statical condition of forces, which thoroughly transformed the esthetic principles of architecture. To this was added the almost unbounded enrichment in materials, such as were created from the abundance of the commerce of the world and were provided for architecture by the restlessly advancing manufacturing in numberless industrial products. These in part deeply important changes in the problems, in the bases and the requirements of architecture must of themselves lead to novel requirements in the artistic composition.

Their first result was the recognition of the unsuitability of the series of forms of the high Renaissance, before chiefly employed in secular architecture. The requirement already stated by Semper with farsighted views:-- "The solution of the modern problem must be freely developed from the conditions given by the present time", now became a fact. But not in Semper's sense. He wished to solve the problem "with reference to those traditional forms, which during centuries had been developed and retained as indisputably faithful expressions and types of certain internal and structural conceptions". Men were now exactly opposed to these. The desire for individual and entirely independent artistic treatment expressed itself

first in acute opposition to the further employment of historical style forms; but it appeared but slowly and only after a strong contest with the conservative forces of architectural creation.

It is a well known historical fact, that great movements, which had as a result a thorough advance of the nations in intellectual or artistic life, always went to the last extreme, which originated the most embittered strife between the best men of their time. But the decision of the questions in dispute did not result from definite principles, but in accordance with the actual requirements of the time. The survival of the fittest is an observed fact, not only in the contest for existence in the existence of nations, but likewise in the strife for the intellectual possessions of men, on which is perhaps based the entire course of civilization. Mankind is opposed to a principle in opposition to the spirit of the time.

But with the rejection of the traditional historical styles, individual forms suited to the period were not yet born, which could be set directly in their places. Sculpture and painting found new ways in direct association with nature. But architecture must first create its types. In the restless search and striving after new forms, it was natural, that the most zealous champions of modern aims should first go to the extreme, and give their requirements the rudest expression, before they were prepared to create new and permanent things. The oscillations of this movement now appear to have reached their greatest extent, and to strife for assured starting points. Even in the circles of the boldest innovators, already appeared undercurrents, supported by the conviction, that in the mere denial or reversal of the ground principles previously followed in architectural forms are not found new guides for a reasonable solution of modern problems, and that also in this way the spirit of the time obtains no generally intelligible expression. Slowly was now developed a clearing of the aims. But from the securing of a modern style in the sense, such as before this we have employed the conception of "style", we are still far removed. A uniformity of expression in form, a unified feeling for style is scarcely to be established. We even stand only at the beginning of a new development, and in the

sum of the phenomena, we can only recognize and follow definite similar causes, that give to modern architecture still an individual stamp, chiefly in the first stage of merely personal seeking and treatment, independent of tradition.

II. The Development of the Modern Style. *

** When we speak of the "modern style", we leave out of consideration in the following all still abundantly appearing works in the architecture of the present time, entirely or principally designed in the historical sense. We rather concentrate our attention upon those architectural creations of the most recent period, in which with a conscious rejection of the historical, a new conception is expressed in a new mode of treatment.*

It was natural, that modern architecture commenced with its first reforms, where the 19 th century exhibited the most apparent weakness. This in general had committed its greatest errors, that in the endeavor after correctness of style, it had subordinated the most natural basal requirements for every architectural creation, appropriateness in plan, construction and architectural form, and the resulting reasonable employment of materials to the architectural appearance. The modern architects now placed just these principles as the primary ground requirement in the foreground of their creations, and they emphasized these from the first to the extreme consequences. "The modern architecture of our time seeks to develop form and motive from purpose, construction and material". So says one of the most influential of modern architects, Otto Wagner in Vienna. "It must be also as simple as possible, to clearly express our design. These simple forms are to be carefully adapted to each other in order to produce beautiful proportions, on which almost entirely are based the effect of the works of our architecture". * § Appropriateness must be expressed in the general appearance of the architectural work, as well as in all its members, if the same is also to produce a satisfactory effect in an esthetic sense. For beauty lies first in the internal truth of the structural organism, each separate part possessing a definite function and expressing it. Thereby the construction obtains a basal importance for the treatment. It precedes this as determinative therefor. The mode

of thought of the architect is permeated by that of the engineer. But the demand for innate truth and suitability is also based on the selection and use of the materials. To satisfy it in regard to these the architect must possess a thorough knowledge of the proportions of the materials, which establishes a practical treatment corresponding to these. With particular energy under the accenting of this requirement was reference made to the great transgressions of the architecture of the 19th century, that in the imitation of the art of the ancients sometimes employed means directly calculated for deception, and not seldom impressed on the material employed, by the aid of machines the most unnatural forms and colors. The form must now result with right consequence from the peculiarities of the material and a corresponding treatment with tools. The hand work therefore already merits the preference, since it alone bears the charm of personal creation, and should again be brought into honor; the machine must only act upon it, where this assures for the mode of production, the desired form corresponding to the nature of the material. All processes of technics must be adopted by architecture, so far as they afford means for a simpler solution, for a more intelligible and modern mode of expression. From new materials are to be derived new and beautiful values contained in their natural appearance, and particularly in their colors. The colors may generally be important means for producing harmony and concord in rich measure in the service of the modern art of interiors. On the contrary the ornament, even if it cannot be entirely omitted, must retire behind the essential obedience of the technical requirements, and particularly behind the esthetic effects contained in the materials.

* * Otto Wagner. *Skizzen, Projekte und ausgeführte Bauwerke*. Vol. 3. Heft 35. Vienna. 1906. Also see Joseph Strzygowski. *Die bildende Kunst der Gegenwart*. Leipzig. 1907.

These requirements are not novel; Semper had already emphasized and thoroughly demonstrated them (page 323, 365), and likewise Ruskin (page 343); William Morris (page 346), who was absolutely a Gothicism, in 1859-1861 had based thereon his own house in Bexley Heath in England and his path-breaking industrial works, thereby producing a complete reform of the English

art industries. That was the conception of art of the architects standing in the front rank of the modern movement, which differs from that of the before mentioned artists, and which consists substantially in this, that modern architects desire to fulfil these ground principles with the utmost possible, or the entire exclusion of all historical style forms.

The beginnings of the modern movement in architecture may be referred to the commencement of the nineties of the last century. Already the first attempts permit the recognition of opposition to the art style previously employed, particularly of the high Renaissance; perhaps they proceeded rather from the opposition to the customary, rather than from well considered conceptions of historical styles. Certainly the endless repetitions of the form apparatus of the Renaissance in an inartistic, spiritless and frequently entirely displaced imitation produced an unequalled monotony of modern street views. One jolted over the ground principles of the Renaissance, the symmetry, the severity of the orders, over its entire organism, but soon became aware, that one could not advance in this way, and therefore gradually passed over to entirely new forms. Thereby the artistic freedom was fully accepted, and no wonder if it at first put forth quite doubtful flowers. To novelty and individuality was much sacrificed at the expense of the beautiful; with crude and momentary flashes not infrequently commenced a bold play, yet the best balanced champions of the modern art tendency were assured of loud approval of the technical press served by them, as soon as they even brought something "novel" and not yet existing into the plan. In the rapidly living time the movement progressed mightily; about the end of the century, it had already comprised extensive classes.

In the year 1901, the artist colony, called by the art-loving grand duke Ernest Ludwig of Hesse for the free culture of modern art in his capital, opened its Exhibition on the Mathilde hill in Darmstadt. In a number of completely executed buildings, arranged ready for use and occupation, among which the house for a single family occupied the most important place, the Darmstadt artists gave a view of their creations. The design of the general plan of the exhibition and the greater number of the buildings, as well as the superintendence of the

whole was in the hands of Joseph Olbrich, who was born in 1867 in Troppau, had received his training in Vienna under Hasenauer and particularly under Otto Wagner (page 335), and by journeys in Italy and France had become acquainted with architecture in those countries. In the principal catalogue Peter Behrens (born 1868) gave in the introduction, to which he prefixed the description of his own house, a kind of artistic programme for architecture in general, and particularly for the plan and arrangement of his house for one family. This exhibition aroused vast attention; it denotes a landmark in the development of modern art on the continent. Thenceforth the new movement obtained fixed aims and definite guide lines; in the course of the succeeding decade it won, not only in architecture, but also in the art industries an incontestable victory over the exclusively backward-looking style tendencies of the preceding century.

Until now the modern style has chiefly appeared on those buildings, which presented new problems for solution. In the foreground stand the structures for the industries, and indeed first those for the production of goods, the manufactories, and then those for the sales, the warehouses. The erection of manufactories previously belonged almost exclusively to the problems of the engineers. In them already for purely business reasons, the basal requirements of the modern tendency, the suitability in plan, construction, and the employment of the materials, came to a severer execution; these demands formed the fixed and determining basis for the plans and calculations to be made by the engineer. The manufactories also had earliest developed the method so strongly affecting the structural organism, of concrete reinforced with steel. The new conception chiefly expressed itself on them in the abandonment of the former structures like barracks, in favor of architectural groups; for men saw the grand effect here desired, no longer in the long lines of facades with many stories, but rather in the alternation of separate structures, (tasteful in mass, height and treatment.

An entirely novel form was received by the department store. For this was required the most advantageous utilization of the interior for the purposes of storage, exhibition and sale, for

a convenient, evened and easily worked account of the end-
 110. a convenient addition of the end- and a conven-
 an addition of the end- and a conven-

ending and soon. Consequently for the first time a
 a novel architectural account. The addition of the end-
 120. to the end- and a conven-
 130. to the end- and a conven-

the end- and a conven-
 140. to the end- and a conven-
 150. to the end- and a conven-
 160. to the end- and a conven-

170. to the end- and a conven-
 180. to the end- and a conven-
 190. to the end- and a conven-
 200. to the end- and a conven-

210. to the end- and a conven-
 220. to the end- and a conven-
 230. to the end- and a conven-
 240. to the end- and a conven-

250. to the end- and a conven-
 260. to the end- and a conven-
 270. to the end- and a conven-
 280. to the end- and a conven-

290. to the end- and a conven-
 300. to the end- and a conven-
 310. to the end- and a conven-
 320. to the end- and a conven-

330. to the end- and a conven-
 340. to the end- and a conven-
 350. to the end- and a conven-

a convenient, overseen and easily controlled access of the public, a corresponding admission of light and air, and a thorough utilization of the enclosing walls for the purposes of lighting and show. Consequently for the facades was developed a novel architectural scheme. The proportion of the wall openings to the wall surface fixed during the Renaissance period proved itself impossible. Especially in the lower stories, the windows must be made as large as possible, and thus the remaining wall strips left as supports must be reduced to the extreme limits possible. Steel offered a structural material appropriate for this, yet not by itself alone, but already on account of its small resistance to fire, within a casing of natural or artificial stone. For this concrete mixed with cement, sand and gravel afforded an excellent material, since it possessed the valued property of combining with steel into an organic unity of high resistance. The entire surface of the facade was then resolved into piers, and at the heights at which these had to receive the internal beams and their loads, they were connected by horizontal beams of reinforced concrete, thus obtaining a skeleton construction, which left entirely free the surfaces lying between the piers and the horizontal beams. If as generally the case in the upper stories, it was not desired to extend a single window in these openings, then could be arranged a subdivision by tracery. Thus was developed a mode of construction, which is closely allied to the Gothic buttress system (volume 2, page 78). But it appears here entirely as an independent solution of one of the most important problems of modern architecture. In its ground lines it is found in the business office building erected by R. Norman Shaw in 1872, generally known under the name of New Zealand Steamship Company in Leadenhall St. in London (page 349; Fig. 292). But it was first developed in Germany into a consistently executed architectural system. The actual creative building is the warehouse (department store) Wertheim in Berlin, built in the years 1896-1900 by Alfred Messel (born 1853 in Darmstadt, died 1910 in Berlin), a pupil of H. Strack (page 286). The Gothic keynote is here apparent at the first glance. In the details of the main facade, besides purely novel forms and Gothic motives, are employed those of the Renaissance and the

Barocco, but which produce an entirely novel impression, since they are detached from their original organism, and here must assume entirely different functions. The facade toward Vossstrasse represented in Fig. 302 and executed in the year 1900 has chiefly Gothic forms of detail. In nearly all the larger cities department stores have since originated, on which the new type is developed in a model manner and not rarely with an entire rejection of historical forms. An extraordinarily advanced example in the opening of the wall surface between massive piers is presented by the facade 249.4 ft. long of the department store Tietz in Leipzigerstrasse in Berlin, designed by Bernhard Sehring (Fig. 303).

The architectural system of the department store was also transferred to the other business buildings of the larger cities. Indeed in most of them it is ~~not carried out with entire consistency~~, since as a rule great openings for shop windows in the wall are only necessary for the lower, or for the two lower stories, while the upper stories are used for office or residence purposes. Therefore here is found instead an approximation to the architecture of the dwellings built in blocks. The division into rooms permits and requires broader wall piers between the windows. The need of light and air and the most favorable view of the street here leads to a projection of certain wall strips, or of all lying between the piers in the form of prismatic or segmental surfaces, or even to the insertion of a series of windows occupying this entire width in each story. Likewise for this R. Norman Shaw gave a model in his New Zealand Chambers. (Fig. 292). On the continent Martin Dülfer (born 1859) created in the Office Building of the Allgemeine Zeitung in Munich, erected in 1900-1901, a prominent and much approved work of this kind. (Fig. 304).

Next to the buildings for industry, the citizen's dwelling indeed occupies the most prominent position in modern architecture. Without doubt the English, and besides this also the later American architecture, have here exerted a mighty influence. Here as well as there, to afford free access of light and air, as a building site is chosen a garden, which enjoys particular attention in plan and maintenance. Therefore for the larger cities are developed villa colonies outside the in-

internal domain of the city. The grouping of the rooms follows the requirements of suitability, convenience, hygiene and the individual needs of the family, without permitting the consideration of the treatment of the facade to control. The central point of the house is formed by the hall or vestibule (p. Spage 345); next it are arranged the separate chambers and the living rooms, so far as the latter (particularly the kitchen) are not located in the basement. For obtaining sleeping rooms, which will be entered by the morning sunshine and living rooms in the best location with regard to the sun and the outlook on the landscape, great care is taken. Broad bay windows and alcoves enhance the convenience of the rooms and give them a homelike character. The admission of light is so regulated by the arrangement of the windows in reference to their position and form, as they seem most suitable for each room, according to its purpose, and the feeling of the interior is favorably influenced. Likewise the positions of the doors result from careful regard to these. By means of terraces and balconies care is taken, that in winter sunny and free places and cool ones in summer are at command, and that a certain connection with the garden is produced, without necessarily leaving the house. On the exterior the modern dwelling represents an entirely new architectural view. The earlier and mostly common geometrical box form is dropped, and almost invariably symmetry as well; the entire mode of solution of the ground plan compels a very free treatment of the architectural masses and an outline with animated movement. Even on these residences in which the rectangular ground form is retained, the arrangement of the doorways, windows, bay windows and the forms of the roof produce a novel impression. The portals preferably extend externally, in order in a certain sense to invite comers to enter, and to already afford shelter from the weather outside the doorway. (Figs. 305, 309). The windows have changed their previous proportions of breadth to height. They are often arranged as horizontal rectangles and preferably in a series beside each other. The roof cornice terminates the facade, sometimes with a horizontal projection casting a deep shadow (Fig. 313), sometimes rising like a curved gable, and particularly so when attic chambers are arranged with windows in the enclos-

enclosing walls. (Fig. 314). The uppermost window openings in this case generally have freely outlined forms. (Fig. 304). The roof attains a previously unknown importance; it is strongly emphasized as protecting and warming, a hood carefully terminating the house at top. Well protected dormers are treated in the most diverse forms and give it a friendly appearance. Likewise the chimneys, indicating an abundant care for the warming of the rooms, project from the roof and are included in the general view. These frequently appeared as neglected in the organism earlier common. The treatment of the vertical motives acting in the bay windows and piers presents no difficulty to most modern architects; they insert these directly and simply stop them below the projection of the roof, undisturbed by the "suggestion of the forces". A technically well executed rough plastering, in which modern architecture finds great pleasure, combines the frequently subdivided architectural masses into a unity, or where animation of the surfaces is desired, affords an alternation of light and dark, or of rough and smooth surfaces. What is still lacking to the external appearance, it is sought to attain by a tasteful coloring, also particularly taking into account the surroundings. In Germany the family residences erected by the Darmstadt colony for its exhibition of the year 1901 are the earliest consistently executed buildings of their kind. Fig. 305, the Keller house in Darmstadt, designed by Joseph Olbrich, gives a characteristic example of this.

Yet more strongly, directly and permanently is expressed the influence of the Darmstadt artist colony in the internal decoration and arrangement of the house. Each room receives a treatment in accordance with its purpose, which extends not only to the walls, doors, ceilings etc., but also to the furniture, rugs, hangings and all accessories. In order to make possible a unified and connected decoration, these arrangements, which by their nature are not to be treated as movable, (thus especially the furniture chests and wardrobes for storage are mostly treated as if built-in or otherwise are permanently connected with the wall. Each separate room is harmonized in a carefully selected color tone, also calculated for its special purpose of occupancy, as well as for a harmonious and effective variety

39/ In the sequence of the rooms. By the monochrome wall hangings of cloth or paper with inconspicuous pattern, over which the eye passes without taking interest in the details, a very quiet harmony is produced. Aside from the introduction to a great extent of hygienically favorable and durable linoleum covering, the floors have experienced slight changes. On the ceilings prevails gypsum plastering with recessed panels and coffers, already on account of their construction in reinforced concrete; their subdivision follows with reference to the greatly preferred electric lighting fixtures, that are arranged at several points and diffuse a uniformly distributed light in the room. The form treatment of the furniture exhibits an entire freedom from tradition; it even goes so far, that the different articles of furniture are constructed entirely with presuppositions, and as if we were at the primitive beginning of the art industries. Chairs and tables, which for centuries exhibited in general the same forms, now receive new forms, which are indeed frequently surprising in their self-evident suitability. The endeavor to reject everything inorganic and to create a unified and simple whole leads to a thorough rejection of ornamental superfluities. In the ideal treatment of the ground form, the rhythmic movement of structural guiding lines, that give a living expression to the esthetic problems of the parts of the equipment, appears the best ornament to the modern artist of the interior. The beauty and genuineness of the materials, a pleasing color treatment of the same with rich use of all architectural products, particularly of the modern glass and ceramics with a model execution, on which modern art industry looks with justifiable pride, give artistic completion to the arrangement. Our Fig. 306 presents a view of the hall in the Glückert house at Darmstadt, that was designed by J. Olbrich and executed under his supervision. Fig. 307 is a design for a room by Patriz Huber, who unfortunately departed too early from this life, and that had created in the Darmstadt colony a series of harmonious interiors. The design is characteristic for his arrangements of interiors, and likewise for the internal art of the modern style, as this developed in itself, chiefly under the influence of the Darmstadt artist colony during the first years of the 20 th century. The Exhi-

Exhibition of Art Industries held in Dresden in 1906, which presented a great number of modern interiors of every kind, already permitted the recognition of a return to more quiet lines (Fig. 308, a dining room by Bruno Paul).

Among the public secular buildings, chiefly the school buildings derived rich advantages from the innovations introduced with the modern style. In them the requirements in regard to the dimensions of the length, width and height of the classrooms, the proportion of window area to magnitude of the room, and particularly the forbidding of openings in the walls before and on the left of the pupils, under the old facade system based on symmetry of the whole and of its subdivisions frequently presented great difficulties for a satisfactory solution. Freedom from the compulsion to a regular treatment of the facade, mostly based on the use of the antique orders, the natural development of the ground plan and structure only in accordance with the location and form of the building site and the programme of internal requirements, the flexibility in the arrangement and form treatment of the windows, the desired alteration of large closed surfaces with those opened by rows of windows, led comparatively soon to a definite type of school building, that in reference to its very apparent suitability and reality belongs to the best acquisitions of modern architecture. On the contrary, the city halls were relatively little affected by the innovations. The modern cities indeed did not in general fall behind in the expression of their power and a grand conception of their problems, or in participation in the artistic interests of the entire people; they show this by the founding and zealous fostering of city museums of antiquities and of art, among others. But so far as it concerns the city halls, generally the citizens' pride in the native art, the regard to the historical presumptions of the city, and in connection therewith the consideration for native motives, especially for those of the German Renaissance held the supremacy over the endeavors of the modern art, entirely lacking in presumptions. But the new spirit then is expressed in the picturesque grouping of the architectural masses about a tower, happily inserted in the architectural mass, in the omission of symmetry and in the freedom and independence of the forms. †

Likewise the other public secular architecture, so far as it relates to the evolution of a monumental architecture as an expression of a definite circle of interest, influence and power, was but slightly fertilized by the modern style. For the columnar architecture of the Grecian and particularly of the Roman antique, corresponding in such a high degree to this problem, no perfect substitute has been found. The charm of the novelty of a pier system arranged in any manner, the alternation of flat wall strips with those hollowed inward or swelled outward and the like does not suffice for this. Therefore the architects devoted their attention chiefly to the most impressive treatment of the portal, which attracted the eyes of observers to them. J. Olbrich gave a model for this in the portal of the Ernest Ludwig house in Darmstadt. (Fig. 309). For the later time reference may be made further to the portal of the City Art Hall at Mannheim erected by Hermann Billing. (Fig. 310).

Church architecture on the whole appears still reserved with regard to the modern movement, indeed that of Catholicism more than that of Protestantism. The requirements of the service have not changed; the Catholic church architecture had already created architectural forms in the preceding periods, that entirely corresponded in purpose to the established requirements, while the much younger Protestantism has not yet attained to a typical solution of the problem in its church architecture. Therefore its problems lie nearer to modern endeavors than those of Catholicism. Yet there is manifested in the new buildings of churches for both confessions an inclination toward freedom from retaining a fixed scheme in the proportions of the interior and a stronger striving for unity of the interior. The unrestricted sequence of the room and the freer position of the tower frequently compels a picturesque effect enhanced by the lack of symmetry, such as appears in the (Protestant) church of the Redeemer in Stuttgart, built by Theodore Fischer. (Fig. 311). The ground plan of this church is that of a rectangular hall with a side aisle and a gallery, with a semicircular apse. While the architecture here in general also exhibits reminiscences of the early Romanesque middle ages, Otto Wagner passes over to entirely free forms in his (Catholic)

church of the Lower Austrian Provincial Hospital and Asylum in Vienna. (Fig. 312). It is a domed church with a Greek cross plan with the front arm lengthened by the addition of a vestibule. The primitive plan appears here in a modern mode of construction, chiefly composed of steel and copper, and in an entirely novel architectural exterior. On this Wagner embodied the ground principles of suitability to purpose, truth in materials and durability in the most thorough sense. As he says in the explanatory report on the design prepared in 1904; "the materials employed for the erection of the building are evidently the best conceivable, and thereby regard is paid so far as possible to the requirement of eternal duration, inseparable from architecture". The surfaces of the facades are faced with marble slabs 0.79 inch thick, that are held by bond courses 11.81 inches high and 1.58 inches thick. The latter are fastened by copper heads left visible and screwed on steel anchors passing through holes in the marble slabs and fixed in the walls. (The same method of covering was chosen by Wagner for the Postal Savings Bank in Vienna, built in 1904; Figs 315). The construction of the drum and dome is entirely executed in steel covered by stamped and hammered copper sheets. The strong emphasizing of the system of incrustation determines the external appearance, but also lessens the impression of the powerful and the monumental, since the covering conceals just those parts of the construction, which have to take the statical functions of support and bearing.

The architectural treatment of the details permits the distinguishing of two main currents in the modern movement. One of them proceeds from the basis given in the historical styles, while the other is directly connected with them. On the part of those architects, whose art designs are inclined to a bold and nucleate treatment, and for such buildings, that according to their purpose should express force and stability, the early mediaeval forms enjoy a certain preference. But where a rich form expression is desired, the late Gothic, the Barocco, and particularly the Biedermeier style, whose art tendencies exhibit so many tendencies in common with those of modern times, (page 269) form the basis for a new creation, to be developed further. The adherents of this tendency have a strong support

in the animated interest in again securing a permanent native art; extended throughout the largest classes.

The other current of the movement in a more restricted sense "modern" artists decide for an entirely uninfluenced and independent treatment of the details. Yet these are still not united in their aims. A portion of them is completely permeated by the mode of thought of the engineer, who erects buildings for the purposes from a purely utilitarian standpoint. They see in the direct effect of the form for the purpose and in the accenting of the construction and of the character of the materials, the most important and most satisfactory esthetic moment of the architecture, and therefore reject all ornamental decoration in the most thorough manner. There is expressed herein the reaction against the art conception of the preceding period based on ornamental richness. Doubtless the architects engaged in this direction, who are not unjustly designated as "Puritans", thereby acquired high merit for leading modern architecture into sound paths, that they required a strict purification of architecture from all superfluous accessions and carried this out on their buildings.

Opposed to them is another group of architects, who see the principal attraction of their works just in free decoration by ornaments kept entirely modern. These are chiefly guided, not by regard to structural development; they rather consider the facades as surfaces, that may be decorated by correct thought. Not seldom are entire facades dominated by ornamental decoration; even the construction and the doors and windows are arranged accordingly. Otto Wagner, who is such a temperate leader of the new school in Vienna, in regard to the employment of ornamental forms, on his Business Building in Wollzeile (Woolen Row) in Vienna uses this kind of surface decoration for animating the facade, monotonous on account of the uniform distribution of the windows. (Fig. 313). The decoration appears as a single covering hung over the entire front from bronze lions' heads beneath the main cornice. But the ornaments are still modestly arranged within the definite network of the windows without reference to it. An infinitely greater importance is assigned to them on the Business and Apartment Building in Schadowstrasse in Düsseldorf built by G. Wehling in 1899 and

...is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

...The style is not only the form of the

...but also the entire structure

...in the line of the ornament

...has any organic connection with the

...This factor certainly forms an extreme in the style

362 represented in Fig. 314. Here not only the form of the windows in the uppermost story, but also the entire termination of the facade is dependent on the lines of the ornaments. The upper story no longer has any organic connection with the substructure. This facade certainly forms an extreme in the style tendency designated. Its most fruitful field is found in private architecture, where the need of decoration is less supported by art and esthetic criticism. To individual character and artistic caprice is thus opened a field for the freest activity. There originate buildings in not a few cases, such as one was previously at most accustomed to see in exhibition halls, which were only erected for temporary purposes and by their entire nature were desired to produce effects attracting attention by the simplest means. But in the final result, such a procedure in "architecture" must lead to anarchy in style, that certainly does not further the obtaining of fixed artistic ground principles for the architectural creations of our time.

363 The two tendencies here mentioned denote the extremest limits of the modern movement. But most architectural creations of our time spring from a conception, that retains the middle line and according to the predominance of the personal art imagination or the kind of architectural problem sometimes turns more to one or the other side. If one looks over the architectural forms of the details of modern buildings in their entirety, then the most striking novelty lies in the almost complete abandonment of window architecture. Enclosures of the windows in the manner in which the Renaissance and the Barocco treated them, are almost entirely omitted. Occasionally are found splays and cavettos with mouldings in a manner similar to that employed on secular buildings of the middle ages. In the modern art, the windows are properly only openings, that result from the structural framework itself, or which are cut at pleasure in the wall surfaces. Otherwise the architectural structure as a rule only retains from the entire subdivision the base and the principal cornice. The division into stories by belts is rare; only exceptionally is this still emphasized. The treatment of the detail forms on the bases and capitals of columns and of piers, on the portals, bay windows, main corni-

cornices and crowning members is entirely individual. Thus for example, Otto Wagner treats his members entirely in the naturally appearing and technically wrought form of the solid materials employed. We here see the plane surfaces composed of materials, that are sawn, cut or rolled, that are carved in metal, hammered, punched and the like, beholding the whole composed of numerous separate rigid forms (Fig. 312, 315). But Van de Velde forms his members as if they consisted of a soft and plastic material, which at the intersections and endings, and particularly where pressure and resistance should be expressed, grows out into knob-like forms, recalling the structure of bones. With the requirement of consistent truth in materials for the mode of formation, this cannot certainly always comply.

According to the strict conception of the modern architects in the architectural treatment of the buildings, the ornament only possesses a justification in so far as it is serviceable to the clarity of the architectural expression, thus indicating the statical function of support or burden or the subordinate effects of definite stresses. The same requirements were also already determinative in earlier periods, particularly in the best times of the Grecian antique and of the Gothic for the employment and treatment of the ornaments. But modern art seeks to satisfy them by entirely novel means. Likewise in this are to be distinguished two tendencies. A portion of the architects see in the course of the lines and in the tasteful alternation of abstract forms, whose basis is formed by a non-existing course of lines, consisting of geometrical interlacings or repeats or entirely free, with a color treatment forming the chief moment. (Fig. 316). The other tendency takes its ornamental forms from nature, and particularly from the plant kingdom. Its forms are in part freely conventionalized, so that the natural models are no longer recognizable (Fig. 317), and in part are reproduced with an acute accenting of characteristics. Not only the forms of leaves and flowers, but also the roots, the branches, the form of the stem and bark, the junctions of the twigs and buds are thoroughly studied and employed in accordance with the legitimate manner dictated by their functions in nature. In decorative painting living bei-

beings further play an important part, particularly fishes, birds, lizards, frogs and the like, and even landscapes. If the use of living objects in ornament chiefly manifests the enjoyment of nature, then landscape motives only serve substantially for the production of harmonies. For the manner of their use Japanese art becomes a model. The turmoil of the waves, the cloud band (volume 1, page 49) appear in a very free conventionalization, animated by plant and animal forms of all kinds. For example, we see here the swan, that sometimes moves among animated waves (Fig. 318), sometimes swims toward us from the windings of a watercourse bordered by reeds; there the forms and the landscapes are so simplified in the course of the lines and the colors, that the model at most may be recognized in the outlines and in two or three ground colors. Just for this sort of observation of nature has Japan given valuable suggestions. Modern plant ornament has the advantages of great diversity and mobility, with evident clarity and simplicity; it has an extraordinarily fruitful effect on the style of decoration, particularly on glass staining, ceramics, the mosaic arts, and on all the minor arts, giving new life to them. And yet it may not be satisfactory as versatile, since the general loss of rhythm, the proportions, the contrast and the symmetry, on which the existence of the ornament is based, are not always fulfilled. Therefore appears in increasing measure the inclination to adopt historical motives capable of development, especially those of mediaeval art, of the Barocco, and of the style of Louis XVI, and to give them a modern life.

Likewise architectural figure reliefs enter new paths. The classicistic architectural sculpture, petrified in conventional lack of expression, frequently only loosely connected with the construction, must give place to a realistic tendency. Not the classical repose but movement, as required in the representation of labor, is here expressed, and indeed in a conception of the object and its material. This of itself led to a treatment allied to the Barocco. The Barocco figures are tastefully introduced in the modern architectural form in their composition and development, and enhance its grand effect. Certainly the appearance of the supermen here leads to absurdities; but these are not seldom to be placed to the account of a

less happy mode of conventionalization, that the powerful emphasizing of the characteristic strives for at the cost of the details. Yet even the modern reliefs also in the better works obey the ground requirements of great simplicity and self-evident means, with a suitable subordination to the great lines of the architecture, which is to be accorded to them as a special merit.

Decorative painting likewise has freed itself from most traditions and goes its own way, even if it does not proceed divergently from ancient oriental influences. Characteristic of its conception is the exclusion of deceptions in relief and in perspective. Painting rather seeks to treat the wall as a surface in accordance with its purpose of enclosing the interior, and therefore it rejects the polychrome treatment in favor of two or three carefully harmonized colors placed beside each other. This most plainly appears in glass staining. Puritanism requires great simplicity in the ornamental and figure painting of rooms. Only in the most recent time has it again prepared itself for an advance.

Further mention of the prominent creations of leading architects, as they were given in the earlier chapters, must be omitted by us. For an estimate of their places and importance in the history of architecture, it would be difficult to secure a fixed standpoint already at this time, from which might be further observed with a comprehensive view, objects and appearances not yet come to rest, and to objectively decide on them. Also there indeed scarcely exists an opportunity for the enumeration of further evidence for the preceding statements; let one but attentively observe the modern buildings, as they are erected almost everywhere, and he will find an abundance of examples.

The modern movement takes in architecture in nearly all civilized states the same development; but it found in Germany a particularly favorable soil. If one looks over its previous acquisitions with a scrutinizing eye, then is presented to us a varied picture of strongly pulsating life. Modern art has given to the youthful artist world the strongest impulse toward free and joyful creation. It also seeks to permeate our entire culture and all classes of society. Not only the impo-

imposing house of a nobleman in a villa suburb, but also the simplest dwelling in the modern workmen's village receives from it an individual stamp. Yes, perhaps it is just the worker's house, that derived the greatest benefit from the regard to extreme suitability, convenience, adaptation and durability. The sharp accenting and consistent carrying out of the fundamental requirements for the architecture, freed from the formal compulsion of traditions, in its permeation by modern technics, introduced an advance, most highly important for the evolution of architecture, which first of all is recognized in the entire transformation of certain architectural types, and indeed in a sense required by its purpose. Also we now already have a greater number of modern architectural works to indicate, which as an artistic entirety merit our full consideration and wonder. But otherwise in the flood of phenomena and from the purpose of the culture currents of our time may not be crystallized a consistently developed art conception and art expression. The haste in seeking and striving for new forms produced such disquiet in art taste, that today is rejected, what only a few years since caused astonishment as a great artistic work. We shall only enter safe paths, when architectural creation is led by ground principles, which besides purely practical aims, at the same time presents a fixed and unified artistic programme. Indeed in every time of transition has not been wanting a wonderful mixture of styles and bold new forms, which have subsequently shown themselves to be without result. But in the older forms was required a positive scale, which -- and we must not deceive ourselves concerning this -- is lost with the complete freedom from the art of the past desired by modern architects. A substitute for this is not given by the guiding lines derived from the requirement of suitability, structural truth and genuineness of materials. With the fulfilment of this requirement in general the interest of the engineer in his buildings is exhausted, but not that of the architect, who is at the same time an artist, or should be one; besides this (and according to the purpose of his architectural work, he yet seeks substantially for the impression of comfort, of joy in existence, of prosperity and sufficiency, and to produce the feeling of greatness, power, dimensions, elevation, earnestness,

cheerfulness, magnificence, charm and the like, which as a rule can only be attained by correspondingly beautiful effects of his creations. But purely beautiful things do not result from the engineer's technical satisfaction of practical needs. Just as little the prominence of construction and of the material can be in the esthetic sense the chief purpose of any kind of "artistic" creation. Technics and materials are no creation, but only conditional factors, that serve the artistic power of production, the active will as means for the purpose of beautiful treatment. We have earlier seen, how among the Egyptians the vast pressure toward monumentality created the technics required for this activity, how with the Greeks the very refined art feeling developed into a glorified orderliness the construction for the embodiment of its formative ideas, how the Romans in accordance with their enlarged circle of civilization and their conscious power extended it for their needs and even carried it to grandeur, and how the middle ages embodied its art will directed toward the spiritualization of the material in technics worked out to the last result. Technics only afforded the means and methods for the physical production of art works, but never a starting point or leading factor for the power of artistic creation. This subordination of technics to art will is expressed even more sharply in the different periods, the greater the maturity of their culture. In the culture stream of our present time, that is so impulsive and so rich in new purposes, we may at least hope to be able to develop a striking style and a permanently satisfactory expression. If we desire to advance, we must give to the artistic primitive force, to the innate in us to beautiful treatment, that aims and guides, that come from the maturity of our culture, and we must advance with the progress of the spirit of the time in art life as well. Besides and with the extreme fulfilment of the problem in regard to purpose, technics and material, of our buildings, we must also seek to give them a beauty corresponding to their purposes, a beauty in which the mode of thought of our time receives a likewise characteristic appearance, as was the case in the earlier centuries.

The seeker for beauty in architecture, perhaps more than in any other domain of art, must be guided by clear processes of

corresponding to the problems of the civilization and to the spirit of the most recent time.

thought and by fixed and lasting conceptions. But by the complete rejection of traditions, these would renounce their most secure starting point and support. Likewise in art are laws, that continue permanently, that can just as little be lost, as in the experimental sciences; the neglect of these laws can only result in a restriction in the natural course of development. Modern art is only one link of the chain of culture extending back to the earliest epoch of human intellectual life and continuing through thousands of years. Like each preceding art style, it is the product of a long development; this development cannot be carried further consistently, if one does not know the way in which it has come, if he must in a certain sense again start from the primitive condition of the formative arts, and wishes to reject the extraordinary wealth of experience and of the power over form, which the culture of earlier centuries has left behind. Not by the denial of the importance of tradition, not by the reversal of its ground principles, but by a conscientious examination of its acquisitions, in what manner these may be revalued and cast into new forms, as this occurred in earlier times of transition from one art style to another, shall we succeed with assured aim in grasping the problems of our time, whose entire world is bound by numerous cords to those of the past epochs of civilization. This examination indeed must not limit itself to a formal comparison of styles. Only the genetic method, following the growth and the development, in order to understand the completion, which is indeed native in all domains of research, can here lead us to the aim. The deeper penetration into the history of the evolution of architecture gives us the most valuable indications for a successful development and clarification of the style feeling; it warns against evil outgrowths, produces tolerance of amateurs, and is only opposed to looseness of style; it principally impels observation and criticism, and thereby arouses the consciousness of independent creative abilities; it forms, what is indeed the most important, good taste (seeking for beauty, which also in architecture denotes, and must denote the truly creative force. In bringing out a historically founded understanding of the present time, we shall best assist in a permanent further development of art, corres-

UNIVERSITY OF ILLINOIS-URBANA

720.9H25BER

C001 V002

ARCHITECTURE IN ITS DEVELOPMENT FROM THE



3 0112 024591197